

VOLUME 7. Parts 5/6

pp. 131-188

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15th March, 1952

THE BULLETIN OF ZOOLOGICAL NOMENCLATURE

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The Official Organ of

THE INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE

Edited by

FRANCIS HEMMING, C.M.G., C.B.E.

Secretary to the International Commission on Zoological Nomenclature

LONDON :

Printed by Order of the International Commission on
Zoological Nomenclature

and

Sold on behalf of the International Commission by the
International Trust for Zoological Nomenclature
at the Publications Office of the Trust
41, Queen's Gate, London, S.W.7

1952

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BULLETIN OF ZOOLOGICAL NOMENCLATURE

Volume 7, Parts 5/6 (pp. 131-188)

15th March, 1952

ON THE QUESTION WHETHER " NEOTYPES " SHOULD BE RECOGNISED IN THE " RÈGLES " AS A CATEGORY OF TYPE SPECIMEN: AN APPEAL TO ZOOLOGISTS FOR ADVICE

By FRANCIS HEMMING, C.M.G., C.B.E.

(Secretary to the International Commission on Zoological Nomenclature)

(Commission's reference Z.N.(S.)358)

(For the decision by the Thirteenth International Congress of Zoology
that an investigation should be made in regard to this subject, see 1950,
Bull. zool. Nomencl. **4** : 192-193)

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General considerations

1. Introductory: The present paper is concerned with the question whether "neotypes" should be recognised in the *Règles* as a category of type specimen and, if so, under what conditions and subject to what safeguards. The present is the sixth of the seven problems relating to the *Règles* which the Thirteenth International Congress of Zoology at its meeting held in Paris in 1948 considered in a preliminary fashion but on which it took no definite decisions, taking the view that the problem required further and more detailed consideration before decisions were taken thereon. The Congress accordingly invited me, as Secretary to the International Commission on Zoological Nomenclature, to confer on this subject with interested specialists with a view to the preparation of a comprehensive Report, with recommendations, for submission to the Fourteenth International Congress of Zoology when it meets in Copenhagen in 1953.

2. In the interval which has elapsed since the Paris Congress, I have taken every opportunity that has offered to obtain the views of interested specialists on this subject. This has led me to two conclusions: first, that the lack of type material may in certain circumstances offer an insuperable obstacle to the attainment of stability in nomenclature at the species-name level and therefore that there is a need for the insertion in the *Règles* of a provision which will enable a definite meaning to be attached to a given trivial name and thus put a stop to the endless discussion and pointless argument which has in many cases been going on for years, the continuation of which would otherwise be inevitable; second, that for the foregoing purpose so many workers over so wide an area of the Animal Kingdom have already attempted to meet the foregoing difficulty by the erection of unofficial "neotypes" that there is already a strong presumption that the official recognition of the "neotype" concept would be in accordance with the wishes of large numbers of zoologists. The opposition which has hitherto been evinced towards "neotypes" seems, on the other hand, to spring not so much from hostility towards "neotypes" as such as from opposition to the private and unofficial creation of "neotypes" and to fears that, if the "neotype" concept were to be officially recognised, the provisions relating to this class of type specimen might not be hedged in with sufficient safeguards to prevent this innovation from being seriously abused. In the present survey of the problem, I have attempted to set out as fairly as possible the disadvantages as well as the advantages involved in the recognition of "neotypes." Believing, as I do, that the general wish of zoologists will be that the Congress should recognise the "neotype" concept, I have however devoted a considerable amount of time to an examination of the practical problems which would have to be solved if any system of "neotypes" were to be made workable. Under each of the headings involved, I have also drawn up tentative suggestions to form the basis of discussion, if the Copenhagen Congress were to decide to pursue this subject.

3. As in the case of the problems dealt with in the earlier papers constituting the present series, I hope very much that Nomenclature Committees of Museums

and other scientific institutions will be good enough to furnish statements of the views of their members both on the general question whether it is desirable that "neotypes" should be recognised in the *Règles* and, if they are in favour of such action, on the suggestions put forward in the present paper on each of the problems upon which decisions would need to be taken by the Congress. Corresponding statements from individual specialists, particularly those who have themselves had occasion to consider the practical application of the neotype principle, are also very much desired.

4. It is particularly necessary in a case such as the present, where the suggestion is that provisions should be inserted in the *Règles* on some aspect of nomenclature which has not yet been made subject to international regulation that the data assembled for consideration by the International Congress of Zoology should be as comprehensive as possible and should be made available as long in advance of the Congress as may be found to be practicable. It is my hope therefore that it will be possible to publish in the *Bulletin of Zoological Nomenclature* the Report which I have been charged to prepare as far ahead as possible of the Copenhagen Congress. Specialist Committees and individual specialists who are interested in the present problem and who desire to express their views during the preliminary discussion of the issues involved will therefore be rendering a doubly valuable service if they will despatch the statements setting out their views in time for those statements to reach the Secretariat of the Commission not later than 31st July, 1952.

5. For the reasons explained in the preliminary note to the present series of papers (1952, *Bull. zool. Nomencl.* 7 : 1-3), the work of the Secretariat will be greatly assisted if communications on the present subject are typewritten on one side of the paper only, double-spaced, with wide margins, and furnished in duplicate. The names of signatories should be typewritten as well as written.

6. All communications sent in response to the present appeal for advice should be clearly marked with the Commission's Reference Number Z.N.(S.)358, and should be addressed to myself, as Secretary to the Commission (address : 28, Park Village East, Regent's Park, London, N.W.1, England).

(a) Problems calling for consideration in connection with the suggested recognition of "neotypes"

7. Need for adequate safeguards against abuse if neotypes are to be recognised in the "Règles": When in 1945 the proposal that neotypes should be recognised in the *Règles* was first formally placed before the International Commission and the zoological public generally by the publication of an application on this subject received from Dr. Don L. Frizzell and Dr. Harry E. Wheeler (Stanford University, California, U.S.A.) (*Bull. zool. Nomencl.* 1 : 106-108), I published a short note (Hemming, 1945, *ibid.* 1 : 109-111), drawing attention to certain of the practical problems which would need to be solved and stressing the need for the adoption of rigorous safeguards to prevent the neotype system, if adopted, from being exploited for commercial

reasons or otherwise abused. Every specialist who has since written to me on this subject or with whom I have discussed it has agreed that, if neotypes are to be recognised, the most stringent provisions will be needed to forestall abuse of the foregoing kind. It seems to be generally agreed that the first of the provisions to be inserted in the *Règles* if neotypes are to be granted official recognition should stipulate that no specimen is eligible for selection as a neotype unless it is the property of a museum or other public institution or, on being so selected, is presented to, or placed on permanent loan in, such an institution.

8. Code of Ethics in relation to the designation of neotypes : The exploitation of neotypes for purposes of financial gain is not however the only form of abuse against which it is necessary to guard; for, if workers in any museum or other public institution were to be free to designate neotypes to an unlimited extent, there would—human nature and institutional pride being what they are—be a serious risk that some institutions might designate neotypes for species of which that institution had never possessed any of the original type material and in conditions where some other institution had a much stronger claim to be the possessor of neotypes, if these were to be established. For example, where, either through air-attack in time of war or through some natural calamity, such as fire or earthquake, type specimens possessed by a particular institution were destroyed, that institution clearly has a much stronger moral claim to be the possessor of any neotypes subsequently established than has any other institution, and it would be an abuse of the system of neotypes if any other institution were to be free to designate neotypes for the species concerned from among specimens in its own collection. On the other hand, it would be quite impracticable for a variety of reasons to include in the *Règles* a provision that neotypes are only to be designated from among specimens possessed by the institution in which the original type material had formerly been deposited; for (1) the missing type material of many species is not known ever to have been in a museum at all; (2) material suitable for designation as neotypes may not be possessed by the museum concerned or other material more suitable for this purpose may be in the possession of some other museum. While everyone will agree that, when a neotype is designated, due account should be paid to moral claims which any institution may have to be the one in which that neotype should be deposited, it is quite evident that this end cannot be secured by any specific provision to be inserted in the *Règles*; it is equally evident that the insertion in the *Règles* of a mere *Recommandation* such as the Code of Ethics (in regard to the giving of substitute names to species possessing invalid names) would not provide a safeguard of adequate strength. We are thus forced to the conclusion that the only way of ensuring against serious abuse of the neotype system would be the institution of some central authority, without the approval of which no neotype could be validly established.

9. Need for the avoidance of duplicate neotypes : It cannot be doubted that, if any worker were to be free to designate neotypes from among the specimens contained in the collection of any museum or similar institution, duplicate neotypes would constantly be created, just as today species already possessing valid names are constantly being re-described as new species. The

existence of duplicate or competing neotypes could not fail to lead to serious confusion, and would moreover bring discredit upon the whole neotype system. It is clearly essential therefore that adequate steps should be taken to guard against this danger. It is immediately evident that this object can be secured only by an arrangement under which no neotype designation could be validly effected unless that designation were registered with some central authority which alone would be in a position to ensure that no such designation was permitted if a neotype had already been designated for the species in question.

10. Need for the safe preservation of neotypes and the provision to specialists of reasonable access for the study of neotypes: We have seen that, in order to ensure against the risk of the commercial exploitation of neotypes, it must be an essential feature of any scheme for the official recognition of this category of type specimen that no specimen shall be recognised as a neotype unless it is in the possession of, or in the permanent custody of, some museum or other public institution. Such a provision should be sufficient for the particular purpose noted above, but, unless supplemented in two directions, it would not necessarily provide the guarantees necessary for the due preservation of neotypes or for the free study of neotypes by interested specialists. It is common knowledge not requiring any elaboration that not all museums and other public institutions possessing zoological and palaeontological collections exercise at all times a sufficiently high degree of care of the specimens entrusted to their charge to ensure the preservation of those specimens from risk of deterioration, destruction or loss. Clearly, if a new category of type specimen (neotypes) is now to be recognised, it is important that all practicable steps should be taken to ensure that type specimens of this category shall be deposited only in institutions which can be relied upon to take adequate care of them. Further, as is well known, the ability and willingness of institutions to provide facilities for the study of their collections by outside specialists varies very greatly. Here again, there will be general agreement that, if the establishment of neotypes is to be permitted, that permission should be limited to specimens belonging to, or deposited in, institutions which can be relied upon to permit reasonable access to those neotypes for study by interested specialists. Neither of the foregoing *desiderata*—as is evident—can be obtained by means of an express provision in the *Règles*, for clearly no institution can be expected voluntarily to refuse to accept neotypes for its collections on the ground that it is not competent either properly to look after those specimens or to provide adequate opportunities for their study. These objects can, in fact, only be secured by entrusting to some central body the duty of approving proposals for the establishment of neotypes, for such a provision would, *inter alia*, provide that central authority with a discretion in relation to all aspects of proposals so submitted.

11. Need for the publication of full descriptions and figures of specimens proposed to be designated as neotypes: Since the sole object of establishing neotypes and the only utility of neotypes when established is to provide the clearest possible standard of reference for the identification of the species in question, it is essential that any scheme for the recognition of neotypes should provide that, as an indispensable preliminary to the designation of a

specimen to be a neotype, there shall be published a full description and figure (or figures) of the specimen proposed to be so designated. Here again, if a uniformly high standard is to be assured, there will be a need for some central authority charged with the duty of ensuring that this requirement is fulfilled.

12. Circumstances in which the designation of a neotype should be permitted : In the discussions which have taken place on the question of establishing neotypes, it has generally been assumed that the purpose of this category of type specimen should be to provide a standard of reference in cases where the whole of the original type material on which a given species was described has been either lost or destroyed. This is undoubtedly the principal class of case for which neotypes are required. It is not however the only class of case, for it sometimes happens that the need for an adequate reference specimen is just as great where some of the original type material still survives as it is when the whole of that material has disappeared. Naturally this situation is not confined to cases where syntypes only are available but may arise also where the lectotype or even the holotype of the species is still in existence. This kind of situation may be illustrated by the following examples : (a) In the case of many Recent species positive identification is dependent upon the examination of some particular structure, and it may easily happen that the holotype or surviving syntypes (where no holotype was designated by the original author) are so broken or otherwise in such bad condition as to be useless for the purpose of providing a standard for identification ; (b) In the case of Fossil species the surviving type material may also be too fragmentary to afford a satisfactory basis for the revision of the species concerned ; in addition, such type material may consist of casts only, entirely lacking the essential internal structure. In cases of this kind, it is clearly just as necessary that a neotype should be provided as it is in cases where the whole of the original type material has disappeared.

13. Importance of ensuring that a specimen designated to be a neotype should conform as closely as possible with the original description of the species concerned : In designating a specimen to be a neotype, it is clearly desirable that normally the specimen should conform as closely as possible with the original description of the species concerned and with any figure which may have been published with the original description. For example, if it is clear from the original description that the description was based exclusively upon a specimen (or specimens) of one sex only, the specimen to be designated as the neotype should be of that sex, except where the characters diagnostic for the species are much more clearly marked in the other sex. Similarly, where a species has more than one annual generation, the successive generations differing from one another, the specimen to be designated as the neotype should be of the annual generation described or depicted in the original description of the species. A similar principle should, it will be agreed, be observed, where the species was originally described from a specimen belonging to one of two or more dimorphic forms. It may however happen occasionally that a species for which it is desired to establish a neotype was based by its original author upon some aberrant individual form ; in such a case, it may be thought desirable to designate as the neotype a more representative example.

The conclusion which appears to emerge from the foregoing considerations is that, although in general it is desirable that a specimen designated to be a neotype should possess as many as possible of the known characteristics of the specimen (or specimens) upon which the species in question was originally based, there may be circumstances in which a departure from this principle in one or more respects would be desirable. Accordingly, it seems that this is not a matter on which mandatory provisions should be included in the *Règles*; it would however be desirable to include a *Recommandation* on this subject, in order to indicate to workers contemplating the designation of a neotype the principles which it is desirable should be followed, so far as individual circumstances permit.

14. Question whether a specimen designated to be a neotype should be from the same locality as that from which the species concerned was originally described : In accordance with the general principle that a specimen selected as a neotype should resemble the specimen from which the species was originally described as closely as may be found to be practicable, it is clearly desirable that, other things being equal, a neotype should be a topotypical specimen. For a variety of reasons however this may not always be practicable. The following examples illustrate circumstances, entirely different in character, in each of which however it would be impossible to give effect to the foregoing principle : (a) In some cases a Recent species was originally described from an extremely limited locality and has since become extinct in that locality as the result of human agency (e.g. building development, drainage schemes, etc.) or natural causes (such as flooding, erosion, volcanic action or the like); in such cases it would be impossible to obtain fresh material from the type locality, and the choice would rest between designating as the neotype some old—and possibly unsatisfactory—specimen labelled as having been taken in the type locality or entirely satisfactory newly taken material from some other locality. (b) In the case of Fossil species, it might be impossible to obtain topotypical material, not because the site had been destroyed but because the condition of the rocks from which the type material had originally been obtained was such that no specimens were obtainable in a sufficiently good state of preservation to permit of the study of internal structure, an essential condition to the designation of a neotype. In such cases the insistence upon a rule that a neotype must be a specimen from the same locality as the original type material of the species concerned would mean that for the particular species concerned it might be impossible to find a specimen which was both in good condition and was also eligible for selection as a neotype. Such a rule would therefore clearly stultify the purpose for which it is proposed that official recognition should be given to neotypes. Accordingly, it seems to me that, while it is desirable that a specimen designated to be a neotype should, wherever possible, be one collected from the same locality, or, in the case of a parasitic species from the same host species, or, in the case of a fossil species, both from the same locality and in rocks of the same geological age and in the same horizon, i.e. at the same depth above or below some recognised zone, as the specimens upon which the species was originally founded, it would not be desirable to make this a universally binding mandatory provision. It is suggested therefore that this is a matter which could only be appropriately

dealt with in the *Règles* by means of a *Recommandation*. It will be appreciated that, if—as we have already seen appears necessary for quite other reasons—the scheme were to include a provision that no specimen was to be officially recognised as a neotype until it had been approved as such by some central body, it would be within the power of that central body to ensure that the principle set forth above was duly observed in every case where it was practicable to apply it. Where it is judged necessary to designate as a neotype a specimen not obtained from the original type locality, the locality from which the neotype was obtained would need to become the revised type locality of the species. We have to remember also in this connection that, although the concept of a "type locality" in the case of Recent species and, in the case of Fossil species, the above concept and also the concept of a "type horizon" are universally recognised by specialists, neither of those concepts finds at present any recognition in the *Règles*. There is thus at present no means for selecting a "lectotype locality" from a number of "syntype localities" or, in the case of a Fossil species of selecting a "lectotype horizon" from among two or more "syntype horizons" cited by the original author of a nominal species; nor are there any means at present (1) by which to restrict an unduly vague or imprecise "type locality" or "type horizon," (2) for making any authoritative and binding correction of a "type locality" or "type horizon" when that cited by the original author of a nominal species is manifestly incorrect, nor (3) for supplying an authoritative "type locality" or "type horizon" for a nominal species, the original description of which did not contain these essential particulars. These omissions constitute a serious cause of confusion and must clearly be made good in any comprehensive plan for promoting uniformity and stability in nomenclature. Proposals for dealing with this matter are accordingly included in the discussion of this—the most important single problem now awaiting decision—given in the immediately following paper in the present series (pp. 172–180). The subject is referred to here because, as will be appreciated, the provision of a satisfactory method for determining and, where necessary, restricting "type localities" and "type horizons" is an indispensable prerequisite for the adoption of any scheme for the official recognition of neotypes.

15. Status of any surviving type material when a neotype has been established : In our consideration of the circumstances in which it should be permissible to establish a neotype (paragraph 12 above), we have seen that in certain conditions it may be just as important to establish a neotype for a species, of which some of the syntypes or even the lectotype or holotype are extant, as it is in the case of a species, the whole of the original type material of which has been lost or destroyed. Accordingly, it would certainly be necessary that the scheme to be included in the *Règles* should provide that, on being officially established, a neotype is to take precedence over any such surviving type material. There is a further aspect of this question which will require to be considered: this is the situation which from the point of view of nomenclature would arise if, after a neotype had been duly established for some species of which either (1) all the original type material had disappeared or (2) the surviving type material was in such bad condition as to be insufficient to provide a firm basis for the identification of the species in question, the

original type material, in the first case, or additional syntypes, in the second case, were to be found. If such a discovery were to be made, it might be found—and it is to be hoped that in most instances it would be found—that the neotype and the rediscovered type material were referable to the same species; it might occasionally happen, however (particularly, perhaps, in the case of Fossil species) that the neotype belonged to a different species from that to which the original type material was referable. In either case a problem of nomenclature would arise, for which it is desirable that provision should be made in any scheme authorising the establishment of neotypes. It would clearly be most undesirable that on the rediscovery of type material previously supposed to have been lost a neotype established for the species in question should automatically be deprived of its status as the unique specimen which alone constitutes the ultimate standard of reference for the determination of the identity of the species in question. Some provision to ward against this danger should therefore certainly be included in any scheme authorising the establishment of neotypes. There are two possible ways by which this end could be achieved: (a) It would be possible to provide in the *Règles* that, on the establishment of a neotype, all surviving type material, whether at that time known to be in existence (this being a provision which, as already shown, will in any case be necessary for other reasons) or discovered subsequent to the establishment of a neotype for the species in question, should be deprived of its status as such. (b) Without going so far as (a) above, it would be possible to include in the *Règles* a provision that, in the circumstances assumed, a neotype is to retain its status as such unless and until, on the facts being laid before it, the International Commission on Zoological Nomenclature were otherwise to direct. It is suggested that of these alternatives, (a) is preferable to (b), since it recognises more fully the essential consideration that the sole purpose of authorising the establishment of neotypes is to provide a final and irrevocable standard for the identification of a species in cases where there is no surviving type material or where the known surviving type material is insufficient for this purpose.

16. Need for publicity and for consultation between specialists prior to the establishment of a neotype: The official recognition of a specimen as a neotype amounts in effect to the provision of an entirely new basis for the identification of the species concerned, while retaining for that species its original name with its original author and priority. It is extremely important therefore that, before any specimen is officially recognised as a neotype, there should be the fullest consultation between interested specialists. For this purpose it is quite clear that any scheme for the recognition of neotypes must include mandatory provisions relating to the giving of public notice of every proposal for the establishment of a neotype. The notice so given should, it is suggested, be made in a form designed to serve a twofold purpose: (1) to draw attention to the proposal that a neotype should be established for the species concerned; (2) to provide an opportunity to institutions or individuals possessing, or believing themselves to possess, type material of the species concerned previously believed to have been lost to bring forward evidence on this subject for consideration before a decision is taken to establish a neotype. It is suggested further that the period of public notice should

not be deemed to start (1) until the application for the establishment of the neotype concerned has been published in the *Bulletin of Zoological Nomenclature* and (2) until after the publication of a paper containing a full description and figures of the specimen proposed to be designated as the neotype, in those cases where detailed particulars on this subject are not included in the application referred to in (1) above.

17. Length of the period of public notice desirable before a proposal for the establishment of a neotype is approved: The subject matter on which consultation is needed before a neotype is established is necessarily more complex than that involved in a proposal that the Commission should use its plenary powers for the purpose (say) of validating some well-known name in current use ; for in the former case it is necessary for specialists to consider not only whether the establishment of a neotype is desirable, but also whether the specimen proposed to be so designated is in every respect the most suitable for the purpose ; in addition, it is very desirable that full opportunity should be given for the bringing forward, for consideration, of alleged type material of the species, the existence of which was not known to the specialist by whom the proposal for the establishment of a neotype is submitted. In the case of applications involving the use of the plenary powers the issue involved is both much narrower and much simpler in character ; the problem involved is in most cases extremely well known to the specialists concerned and the only question at issue is whether or not it is desirable in the interests of nomenclatorial stability that the plenary powers should be used. It is suggested, therefore, that in these circumstances consideration should be given to the question whether the period of prescribed public notice should not be longer in the case of proposals for the establishment of neotypes than for proposals involving the possible use of the plenary powers. The period of notice in plenary powers cases is now one of six calendar months from the date of the publication of the application in question in the *Bulletin of Zoological Nomenclature*, having been reduced from twelve months by the last International Congress of Zoology (Paris, 1948). The only purpose of recognising neotypes as a category of type specimen, if such is decided upon, will be to provide means for meeting a practical need ; from this point of view it would clearly be wrong to impose an unnecessarily long period of notice before decisions could be taken in such cases, for the imposition of such a restriction would deprive the new provisions of much of their practical utility. On the other hand, in a matter of this kind it is extremely important that an adequate period should be provided for bringing such proposals to the attention of interested specialists and for enabling such specialists to make known their views on the complex problems involved. It is difficult to strike a satisfactory balance between these opposing desiderata. On the whole, my feeling is—and I put forward this suggestion for consideration—that it would be wise at least in the initial period to fix the prescribed period of notice in neotype cases at twelve months.

18. Neotypes and the “ Official List of Specific Trivial Names in Zoology ”: Clearly no decision more vital to the interpretation of a specific name could be taken than one establishing a neotype for the species so named.

It will be evident therefore that it would be essential in any circumstances that the trivial name of every nominal species for which a neotype is established should be entered upon the foregoing *Official List* with a note regarding the neotype established, even if the Commission were not already under instructions from the International Congress of Zoology to enter upon it every valid trivial name in respect of which a decision is taken by it. In every case the entry on the *Official List* should include particulars of the locality in which the neotype was obtained and of corresponding additional data in the case of Fossil species and parasitic species (see paragraph 14 above).

19. Relation of neotypes to restricted identifications previously effected: It would be important to ensure that, if neotypes are recognised, provision should be made to secure that the selection of a specimen to be a neotype does not run counter to any restrictions or restricted identifications previously effected. First, where a nominal species was originally published as a composite species but was restricted to a single species by the mechanism provided by Article 31, it would be essential that the specimen selected as the neotype should belong to the species to which the name of the originally composite species had thus been restricted. Similarly, where a nominal species, though not at the species level a composite species, was nevertheless originally based upon examples of two or more subspecies of the same species and the subspecies to which the trivial name should adhere had later been determined under the provisions of the foregoing Article, it would be essential to secure that the designation of a neotype is made in such a way as to avoid any change in the subspecies to be regarded as nominotypical. Again, in many cases an author, acting as a reviser, has defined the content of some nominal species by identifying the taxonomic species represented by that nominal species with the species represented by some later and more detailed description or figure; in consequence that later description or figure has come to be accepted as the standard to be used for reference purposes in the identification of the species concerned. If in such a case it were to be desired to designate a neotype, it would be important that the neotype designation so made was consistent with the standard previously established in the foregoing manner. If it were decided to provide means in the *Règles* for the establishment of neotypes, that procedure would afford an absolutely firm basis for the identification of whatever might be the species in question. There would therefore no longer be any need for the powers conferred upon the Commission by the Thirteenth International Congress of Zoology, under which the Commission was given the power to determine the species to which any trivial name should apply (1950, *Bull. zool. Nomencl.* **4** : 324), for those powers were designed to secure exactly the same end as that which neotypes would serve. In such circumstances the foregoing powers should certainly be revoked, for it would be most undesirable that the *Règles* should contain more than one set of provisions relating to any one subject. Finally, the revocation of the foregoing powers should be accompanied by a provision confirming the small number of decisions already taken by the Commission under those powers. Some of those decisions related a particular trivial name to a figure and not to a specimen and it would probably be found desirable that the confirming provision should include some means for the substitution, as the basis of the identification, of a neotype for the figure cited

in the decision already taken by the Commission. In one case (*Papilio plexippus* Linnaeus, 1758), the figure selected by the Commission to serve as the basis for the identification of a species has since been found unsatisfactory at the subspecies level (1950, *Bull. zool. Nomencl.* 4 : 361) and the defect so disclosed should be remedied by the substitution of a neotype for the figure already designated by the Commission, the specimen so designated to belong not only to the species in question but also to the subspecies commonly accepted as being the nomino-typical subspecies of that species.

20. Proposed grant to the International Commission on Zoological Nomenclature of the exclusive right to designate neotypes : We have seen that in a number of essential respects the intervention of some central body would form an essential feature of any scheme for the grant of official status to individual neotype specimens, e.g. (1) on the question of the appropriateness of a given institution, as contrasted with other institutions, to be the institution in which a specimen proposed to be designated as a neotype should be deposited (paragraph 8), (2) for the purpose of ensuring against the risk of the establishment of duplicate neotypes (paragraph 9), (3) for the purpose of deciding whether the institution to which a specimen proposed to be designated as a neotype belongs or in which it is proposed to place such a specimen on permanent loan is one where there is a reasonable prospect that proper steps will be taken to preserve the specimen proposed to be selected as a neotype and to provide interested students with access to that specimen for the purpose of study (paragraph 10), (4) for the purpose of ensuring, in consultation with specialists in the group concerned, that the description and figures of the specimen proposed to be designated as the neotype of any given species that have been published in connection with or, prior to, the proposed designation of that specimen as the neotype of the species come up to the requisite standard of accuracy and completeness (paragraph 11), (5) for the purpose of ensuring that the specimen proposed to be designated as the neotype of a species should conform as closely as possible with the original description of the species (paragraph 13), (6) for deciding whether the proposed neotype should be a topotypical example (paragraph 14). These are functions which only the International Commission on Zoological Nomenclature is in a position to discharge. It is accordingly suggested that if the neotype concept is to be recognised in the *Règles*, the power to designate specimens to be neotypes should be vested exclusively in the International Commission and that the grant of this right should be accompanied by a provision making it the duty of the Commission, when designating specimens as neotypes, to pay regard, *inter alia*, to the six considerations specified in the earlier part of the present paragraph. The scheme should include a provision that, as an essential part of the designation of a specimen to be a neotype (or of the giving of legal force to an unofficial neotype established prior to the introduction of the scheme) the trivial name of any species for which a neotype is designated should be registered on the *Official List of Specific Trivial Names in Zoology*, the entry so made to include a reference to the specimen so designated as neotype, together with the particulars relating thereto, paragraph 18 above.

21. Procedure proposed to be adopted by the International Commission when considering an application for the designation of a neotype :

The decision involved when the Commission grants an application for the designation of a neotype for a given species will be one which not only calls for a high sense of responsibility but will also demand exceptional care and will require the fullest preliminary consultation with interested specialists in the group concerned. For these reasons it is suggested that the scheme conferring upon the Commission the power to designate neotypes should be made subject to certain exceptional procedures not required in applications relating to other problems of nomenclature. The special procedures which it is suggested should be prescribed in the scheme are discussed in the two immediately following paragraphs.

22. Proposed grant to the International Commission of power to prescribe rules regarding the information to be furnished in any application for the designation of a neotype : Experience shows that very few applications contain the whole of the requisite information at the time when they are first submitted to the Commission ; it is for this reason that, even if the Commission possessed (as it does not) the staff and funds to enable it to deal as rapidly as possible with all applications submitted to it, the consideration of many applications would be delayed by reason of the need for obtaining essential particulars omitted from those applications when first submitted. The amount of detailed information required in a normal application is considerably less than would be needed in an application for the designation of a neotype, and it must certainly be expected that at least in the initial stages after the introduction of the scheme a high proportion of the applications received would be incomplete in a greater or less degree. In these circumstances it would be helpful to applicants, would save time and would relieve the Commission of unnecessary expense if the Commission were to be empowered to prescribe, by order, the information to be furnished in applications relating to the designation of neotypes and similar matters, and it is suggested that provision for this should be made in the scheme.

23. Need for a high degree of participation by interested specialists in applications for the designation of neotypes of species belonging to their respective groups : The purpose of creating neotypes is to facilitate the conduct of taxonomic work by removing doubts as to the identity of the species to which given trivial names are applicable. In these circumstances it will be generally agreed that it is very important to secure that, if the neotype concept is to be recognised in the *Règles*, the procedure to be devised for regulating the designation of individual neotypes should be such as to ensure a high degree of participation by interested specialists in the discussions leading up to decisions on such matters and a predominant influence by such specialists upon the nature of such decisions. To secure the first of these desiderata, I have suggested (a) that the scheme should impose an obligation upon the Commission to give public notice of the receipt of applications for the designation of a neotype in the same way that such notice is required in the case of applications involving the possible use of the plenary powers (paragraph 16) and (b) that, in view both of the complexity of the issues involved in such applications and the need for ensuring that decisions thereon should be as complete as possible and should be as technically satisfactory as care, con-

sultation and study can make them, the period of notice in relation to applications belonging to this class of case should be extended from one of six months to one of twelve months (paragraph 17). The second of the foregoing desiderata should, I suggest, be attained by the form of wording to be used in the *Règles* defining the duties of the Commission when considering applications for the designation of neotypes. What I have in mind—and what I now put forward for consideration—is that the wording to be used should be such as to make it clear that the function of the Commission in relation to an application for the designation of a neotype shall be substantially confined (1) to its satisfying itself that the general principles laid down in relation to the designation of neotypes (i.e. those summarised in paragraph 20 above) have been complied with in the application (2) to its taking the prescribed steps to obtain the views of interested specialists in regard to the application, and (3), on having satisfied itself in regard to the matters specified in (1) above and having taken the action specified in (2) above, to giving the stamp of official approval to the proposal submitted by designating the neotype recommended and by placing the trivial name of the species concerned on the *Official List of Specific Trivial Names in Zoology* with an appropriate reference to the designation of a neotype so made, together with the supplementary particulars specified in paragraph 18 above. A procedure of the foregoing kind would, it is believed, provide all the safeguards required. In addition, it would in effect make the Commission in this matter little more than the agent for giving effect to the wishes of specialists in particular groups, so far as concerns the designation of neotypes for species belonging to those groups. It cannot however be hoped that in every case there will be unanimity among workers on applications for the designation of neotypes for species belonging to the groups in which those workers are specialists. To meet this contingency, the scheme will need to include a provision empowering the Commission, in cases where opinion among interested specialists is divided, to take whatever decision may appear to it, in the light of the information given in the application and elicited in the subsequent prescribed consultations, to be best calculated to promote uniformity and stability in the specific nomenclature of the group concerned.

24. Unofficial "neotypes" established by individual specialists prior to the recognition in the "Règles" of this category of type specimen: That a decision on the question of the conditions in which neotypes can legitimately be established is already overdue is shown by the fact that already many specialists (both neontologists and palaeontologists) working in various groups of the Animal Kingdom have published papers in which they have specified individual specimens as "neotypes" of the species on which they were working. The specimens so specified have no doubt been labelled as "neotypes" in the collections in which they are deposited. The existence of these privately selected unofficial "neotypes" will no doubt be a cause of some embarrassment in the period immediately following the official recognition in the *Règles* of the concept of neotypes. No doubt in many cases the specimens unofficially selected as "neotypes" in this way satisfy all the requirements needed for the selection of a specimen for designation as an official neotype under the scheme now suggested; it may be expected therefore that many of these unofficial "neotypes" will be granted the status of an official neotype

after the new scheme has been introduced. In any case account should be taken of such unofficial "neotypes" wherever one has been selected in respect of a species for which, after the introduction of the scheme, it is proposed that an official neotype should be established. It must be expected however that some at least of these unofficial "neotypes" will fail to secure the approval of interested specialists, while certainly in many cases unofficial "neotypes" have been established unnecessarily, such specimens amounting to little more than well-described topotypical specimens. It is clearly desirable that everything possible should be done to prevent confusion from arising between these unofficial "neotypes", which possess no status in nomenclature, and neotypes officially established under the *Règles* after the introduction of the new scheme. It is not easy however to suggest means for securing this object. One course would be to adopt in the *Règles* some new term to denote the concept at present denoted by the word "neotype", for this would at once draw a sharp distinction between specimens officially recognised under the *Règles* as belonging to this category and those specimens already unofficially styled as "neotypes". It seems likely however that the expression "neotype" has now become so well known and is so deeply embedded in the literature that the general feeling among specialists would be against dropping it in favour of some newly-coined expression; this is a question on which the views of specialists would be especially welcome. If it is felt that it would not be practicable to substitute some new expression for the expression "neotype", it would still be possible to distinguish officially recognised neotypes from unofficially established "neotypes", by assigning to the former a number in some specially established series, such as "ICZN/1", "ICZN/2", etc., these numbers being used in the entry regarding the name in question in the *Official List of Specific Trivial Names in Zoology* and being affixed also to the specimen concerned.

(b) Questions upon which the advice of specialists is now sought

25. The question whether the concept of a "neotype" as a category of type specimen is to be recognised in the *Règles* will, under the decision taken by the Thirteenth International Congress of Zoology, Paris, 1948, be brought forward at Copenhagen in 1953 for decision by the Fourteenth International Congress. The present question differs from most of the others to be considered by that Congress in two important respects: First, it is concerned with a problem on which no provisions of any kind exist at present in the *Règles* and is therefore one which, from the point of view of the *Règles*, breaks entirely new ground. Second, this is a question on which considerations of practical utility and the need for preventing defects in the *Règles* from acting as a break on zoological and palaeontological work have led many specialists in widely diverse fields of the Animal Kingdom to anticipate the reform of the *Règles* in this matter; for already many workers have accepted the principle of neotypes and large numbers of unofficial neotypes have in fact been designated and are commonly recognised. The first question which the Copenhagen Congress will need to decide is therefore whether the existing *de facto* acceptance of the neotype concept is to be regularised by *de jure* recognition in the *Règles*, or, alternatively, whether an attempt is to be made to set back the hands of the clock in this matter by a blunt refusal to accord any recognition to neotypes.

If the decision at Copenhagen is in favour of recognising the neotype concept, immediate consideration will then need to be given to the circumstances in which the designation of neotypes is to be permitted, the safeguards which it will be necessary to impose and the machinery to be adopted for ensuring that the new provisions are duly observed. These are all matters of great practical importance and in many cases the decisions to be taken will necessarily be inter-dependent if a coherent and workable plan is to be devised. It is for this reason that in the present paper I have devoted considerable attention to these questions and have suggested provisions which appear to be not only the most appropriate in each case but also the provisions best calculated to serve as parts of a single co-ordinated plan. As the next step, I am most anxious to obtain from as many specialists as possible their views both on the outline of a plan for the recognition of the neotype principle which I have drawn up in the present paper and on the individual provisions which I have suggested should be included in it. The questions on which the advice of specialists is now sought are therefore : (1) Are you in favour of the recognition in the *Règles* of the concept of neotypes as a category of type specimen? (2) If you are in favour of such recognition, what are your views on the draft plan now submitted for discussion and on each of its component parts? (3) Are there any questions that are not dealt with in the draft plan on which you consider that provisions should be inserted in the *Règles* if the neotype principle is to be adopted and, if so, what are these questions and how do you suggest that they should be dealt with in the *Règles*?

**ON THE MEANS TO BE FOUND FOR PROMOTING THE
GREATEST POSSIBLE STABILITY IN ZOOLOGICAL
NOMENCLATURE : AN APPEAL TO ZOOLOGISTS FOR
ADVICE**

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(Commission's reference Z.N.(S.)359)

(For the decision by the Thirteenth International Congress of Zoology that an investigation should be made in regard to this subject, see 1950,
Bull. zool. Nomencl. 4 : 234)

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Preliminary considerations

1. Introductory : The present paper—the seventh and last of the present series—is concerned with the means to be found for promoting the greatest possible stability in zoological nomenclature. At its Session held in Paris in 1948 the International Commission on Zoological Nomenclature submitted to the Thirteenth International Congress of Zoology a number of measures designed to promote stability in zoological nomenclature. These proposals were approved by the Congress, but, in supporting these proposals, the Section on Nomenclature made it clear that it attached the highest importance to the adoption of measures which would effectively put a stop to the constant changing of names—especially well-known names—on narrow technical grounds of a nomenclatorial character, and was not satisfied that the measures suggested by the Commission were sufficiently bold and constructive to secure the desired end. It was only with some reluctance that the Section on Nomenclature accepted the advice of the International Commission that the action then to be taken should be confined to the matters on which the Commission had itself submitted proposals. In accepting this course, the Section on Nomenclature stipulated that the whole question of how best to promote stability in zoological nomenclature should form the subject of a thorough investigation after the close of the Congress with a view to definitive action being taken by the next (Copenhagen) Congress in 1953. The Congress accordingly invited me, as Secretary to the International Commission on Zoological Nomenclature, to undertake the desired investigation, in consultation with interested specialists, with a view to the submission of a comprehensive Report, with recommendations, for consideration by the Fourteenth International Congress of Zoology when it should meet in Copenhagen in 1953.

2. Widespread desire for greater stability in zoological nomenclature : It is evident not only from the proceedings at the Paris Congress and from those of the International Geological Congress held in London later in the same year, of the International Ornithological Congress held at Uppsala in 1950, and of the International Entomological Congress held at Amsterdam in 1951 but also from the large number of communications which I have received from individual zoologists and palaeontologists since the Paris Congress that the old system of name-changing as a means for securing ultimate stability now finds few supporters and that there is a strong and widespread desire that positive measures should be devised for protecting names in current use from attack and so for securing an immediate advance towards the attainment of stability in zoological nomenclature. Alike in its general scope and in the degree of interest evinced both by specialists in systematic zoology and palaeontology and by workers in the field of applied biology, this question far outstrips in importance every other which today calls for consideration by all who are interested in the orderly development of zoological nomenclature. The very importance of this subject and the fact that every worker will be affected by whatever decisions may be taken makes it doubly necessary that the closest consideration should be given to the issues involved before decisions are taken by the Copenhagen Congress. For it is not enough that there should be an all but unanimous desire that steps should at once be taken to relegate

the changing of names on bibliographical and other technical grounds to the limbo of the past. What is required is that before the Copenhagen Congress there should be as frank as possible an exchange of views among workers of all shades of opinion and in every field as to the best measures to adopt to secure the desired end.

3. Two possible roads of advance : Broadly speaking, the question which has to be considered by all those zoologists who are dissatisfied with the present state of affairs and are anxious to secure greater stability in nomenclature is whether that end can best be secured by the adoption of novel and unaccustomed expedients or whether on the other hand the desired objective could be better achieved by an expansion and development of existing techniques, supplemented, where necessary, by provisions for dealing with problems which give rise to instability in nomenclature in cases where those problems are not at present dealt with at all in the *Règles*. The adoption of new expedients offers great attractions to many enthusiasts, not only as offering hope of rapidly securing increased stability but also as marking a definite break with traditions and practices which had so conspicuously failed to provide a stable nomenclature. On the other hand, many will feel—and it is certainly my view—that serious dangers may be incurred by the introduction, into a long established system, of provisions fundamentally different from those hitherto in force, unless the new provisions are most carefully thought out in advance. Even so, there must always remain the risk that, once such a change was made, serious difficulties might arise which it had been impossible to foresee and for which it would be difficult later to make adequate provision. In a matter of such importance as the present it is particularly necessary that the most careful consideration should be given to the relative advantages likely to be obtained on the one hand by novel provisions having as their aim the provision of, as it were, a short cut to the desired goal, and, on the other hand, by amplifications and extensions of the existing system designed to reach the same goal by following an evolutionary path. These two broad alternatives are discussed separately in the following paragraphs.

PART 1. THE INTRODUCTION OF A " LAW OF PRESCRIPTION " VIEWED AS A POSSIBLE MEANS FOR OBTAINING A STABLE SYSTEM OF ZOOLOGICAL NOMENCLATURE

4. Proposals advanced in Paris (1948) and at Amsterdam (1951) in favour of the incorporation in the "Règles" of a "Law of Prescription" as a means for securing greater stability in zoological nomenclature : The strong general desire among zoologists that means must be found to put an end to the constant changing of the names of animals found expression at the Thirteenth International Congress of Zoology held in Paris in 1948 in two independently sponsored proposals, each aiming at securing this object. The first of these was brought before the Congress by Dr. Henning Lemche (Copenhagen) on behalf of a large and representative group of Scandinavian zoologists (1950, *Bull. zool. Nomencl.* 3 : 159-161), the second, by Professor Pierre Bonnet (Toulouse) (1950, *Bull. zool. Nomencl.* 3 : 177). The general purport of each of these proposals was that there should be established a "Law of Prescription" which would curb the full rigour of the Law of Priority in relation to old long-neglected names not in current use. Under the Scandinavian proposal a generic name or a trivial name published prior to 1850 but not used by any subsequent author from the beginning of that year until the present time would be rejected under a Law of Prescription ; it was further suggested in that proposal that such a genus or species should be known by whatever name had been in general use for it since the beginning of 1850. The French proposal was somewhat less precise in its scope and was to the effect that, under a Law of Prescription which it was proposed should be established, no generic name or trivial name which had remained overlooked for many years should, on the grounds of priority, be substituted for a generic name or a trivial name which had been in general use for a long time ; it was further suggested that disputed questions should be settled by specialists. The same general desire was expressed in the proposal placed before the Ninth International Congress of Entomology held at Amsterdam in August, 1951, by M. Ch. Ferrière of Geneva, who also proposed that a Law of Prescription should be incorporated into the *Règles*. Under this Swiss proposal no specific date would be adopted as the dividing line which would separate those names to which the Law of Prescription would apply from those to which it would not. Under this proposal any name (1) which had been published for a period of 100 years and during that period had never been used by any author other than that by which it had been originally published, and (2) of which the original type material was no longer extant would automatically lose its rights under the Law of Priority. M. Ferrière contemplated also the possibility that, where a name had not been used for a period of 100 years but the original type material on which the nominal species so named was based had nevertheless been preserved, the name in question should not acquire any rights under the Law of Priority until the species in question had been adequately redescribed. As regards this latter suggestion M. Ferrière recognised that the critical issue to be determined was the date as from which the trivial name of a nominal species so redescribed should rank for the purposes of the Law of Priority. If, for example, the name in question had been first published

in (say) 1767 and it had been republished in the manner proposed (i.e. with an adequate description and in combination with the name of the genus to which the species in question was currently believed to belong) in (say) 1951, should that trivial name rank for the purposes of priority as from 1767 or as from 1951 ? All that M. Ferrière felt able to suggest on this question was that it was one which would require further discussion.

5. Questions to be weighed in determining whether it is desirable to recognise a "Law of Prescription": The three proposals described in the preceding paragraph were all of a preliminary and tentative character, and none is sufficiently precise in all essential respects to provide a basis on which a clear-cut mandatory provision could be prepared for insertion in the *Règles*. Nevertheless, each of these proposals clearly envisages the inclusion in the *Règles* of a provision which, in the interest of nomenclatorial stability, would deprive of availability old names which for a hundred years or more had been entirely overlooked, the resuscitation of which could not fail to lead to confusion and objectionable (because, from a practical point of view, unnecessary) name-changing. Everyone, probably, who is interested in securing a stable nomenclature has at one time or another wished that the *Règles* contained some provision of this sort. What is necessary now is therefore to consider whether the introduction of a Law of Prescription of this kind (1) is practicable, and (2) if practicable, would afford the best means of attaining the end desired.

6. Question whether it would be practicable to devise a workable "Law of Prescription": If we take first the question of practicability, all must, I think, agree that, subject to one essential condition, it would be practicable to include in the *Règles* a provision under which a new law—the Law of Prescription—would in certain cases overrule the Law of Priority, thereby conferring availability upon some name published for a given taxonomic unit, even though that name was not the oldest validly published name for that taxonomic unit. The condition which it would be absolutely essential to satisfy in drafting any such provision would be that the terms of that provision were absolutely unequivocal and left no room for subjective judgment. For example, it would be essential to specify categorically the period which it would be necessary to establish as the period during which the name in question had either (1) never been used or (2) had been used only on a small number of occasions, the number so selected being specified in the provision to be inserted in the *Règles*. A definite provision of this kind is one which would in all circumstances convey the same meaning to every reader, and in this sense could properly be regarded as one which it would be practicable to include in the *Règles*. If however the provision were to say that the Law of Prescription applied to any name which had not been used for many years (or "durant de nombreuses années") instead of specifying precisely the number of years to be accepted for this purpose, that provision would be wholly unworkable and its adoption would be open to the strongest possible objection; for the subjective element introduced by the expression "many" in relation to the word "years" would introduce a serious ambiguity; for a period of years which seemed one of "many years" to one worker would not seem

so to every other worker. Accordingly, with a provision so worded it would be impossible to ensure its uniform application by all workers.

7. The weakness of any Law of Prescription arising from the negative character of the test imposed: We have seen in the preceding paragraph that an Article which laid down in clear and precise terms the circumstances in which a Law of Prescription should apply to names would be a practicable provision to incorporate into the *Règles*. We have next to consider whether such an Article would be well calculated to serve the ends for which it was designed. Here we encounter a serious difficulty arising out of the negative character of the test imposed by a Law of Prescription. As is well known, it is virtually impossible to establish a negative proposition on an absolutely unbreakable foundation, for however great the care taken to examine the various possibilities which arise in any given case, it can hardly ever be asserted with absolute confidence that without exception every possibility has been foreseen and its results examined. Accordingly, while it is often practicable, by dint of a great deal of work, to establish that a given negative proposition possesses a high degree of probability, it is hardly ever possible to carry the process one stage further and to establish that such a proposition is unquestionably true. If, for example, there were to be established a Law of Prescription which applied to every name which, throughout the first 100 years following its publication, was used by no one but its original author when publishing the name, it would be necessary to examine the whole of the known literature of the century in question. Great practical difficulties would be involved in any such effort owing to the extremely small number of centres possessing virtually complete scientific libraries, but quite apart from this it would never be possible to reach a stage beyond a point at which it could be affirmed that there was a very degree of probability that the name concerned had never been used during the century in question. For it is never possible to make sure beyond question that every book dealing with the subject has been examined. Until recently, for example, almost every zoologist would have been prepared to subscribe to the view that every published work by Linnaeus was known and had been carefully examined and that in consequence there was no risk at the present time of new Linnean names being brought to light. Nevertheless, every zoologist who subscribed to this view would have been wrong, for recently there has been discovered a small pamphlet published in 1776 containing the names bestowed by Linnaeus on the mammals, birds, fishes and insects figured in George Edwards' *Natural History* published in the period 1743-1751, many of the names concerned being names then published for the first time. We must conclude therefore that a provision establishing a Law of Prescription which relied upon the establishment of the negative proposition that a given name was never used in the literature during some specified period would be subject to the serious disadvantage that it would never be possible to establish such a proposition with absolute certainty; accordingly, it would never be possible to be certain whether or not the Law of Prescription applied to any given name. Moreover, even to establish that such a proposition possessed a high degree of probability would involve devoting a great amount of time and industry to the essentially barren task of searching the old literature of any given group. It appears to me

therefore that, while a precisely worded provision embodying a Law of Prescription must be regarded as constituting a practicable provision, it would nevertheless be open to the serious disadvantages both that from the negative character of the test imposed it would never be possible to be absolutely certain that that Law was applicable in any given case and further that even to establish that there was a high degree of probability that that Law did so apply would involve a great deal of time-consuming bibliographical investigation, involving a most wasteful diversion of effort from genuine zoological studies. For these reasons I suggest that, while the possibility of proceeding by way of establishing a Law of Prescription should not at this stage be discarded, the possibility of finding as good a method of promoting stability in zoological nomenclature as that afforded by the Law of Prescription but one which was not open to the disadvantages described above should be most carefully examined.

**PART 2. THE POSSIBILITY OF OBTAINING A STABLE
SYSTEM OF ZOOLOGICAL NOMENCLATURE BY
MEANS OF AMPLIFICATIONS, CLARIFICATIONS AND
EXTENSIONS EFFECTED WITHIN THE EXISTING
FRAMEWORK OF THE "RÈGLES" AND BY THE
MORE EXTENDED USE OF EXISTING PROVISIONS
FOR STABILISING INDIVIDUAL NAMES**

8. Twofold manner in which stability in zoological nomenclature might be obtained within the general framework of the existing "Règles": Having postponed for the time being the further consideration of the merits of the proposed recognition in the *Règles* of a "Law of Prescription," we must now turn to consider the practicability of obtaining the desired stability in nomenclature by means of amplifications, clarifications and extensions effected within the general framework of the existing *Règles*. Broadly speaking, there are two principal ways by which nomenclatorial stability could be sought along these lines. The first is represented by a systematic and sustained effort to improve the *Règles* by eliminating obscurities and by amplifying existing provisions when these are found to be incomplete or otherwise inadequate. The second is to be found in a determined drive greatly to increase the number of names afforded an unassailable position through being placed upon the *Official Lists*. The first of these methods was pursued a considerable distance by the Thirteenth International Congress of Zoology at its meeting held in Paris in 1948, but, as that Congress itself recognised, much still remains to be done. For this is not a matter on which

any relaxation of effort (such as that which occurred between 1901 and 1948) should be permitted. What is required is that a constant watch should be kept for difficulties which may arise in the application of the *Règles*; wherever a problem arises for which an unequivocal answer cannot be obtained from the *Règles*, that problem should at once be referred to the International Commission on Zoological Nomenclature, so that that body can formulate, in consultation with specialists, a satisfactory solution of the particular difficulty concerned and thereby, with the approval of the next following Congress, provide, so far as that particular problem is concerned, a means for eliminating doubt not only in the particular case submitted but also in all similar cases which may later arise. But this method of advance, extremely valuable though it is, cannot achieve that stability for individual names which it is the desire of the great majority of present-day zoologists to secure and which is the only contribution asked for from zoological nomenclature by teachers of zoology and by workers in the applied fields of biological endeavour. In this field also important advances were made by the Paris Congress in 1948, but much still remains to be done. These parallel but quite distinct methods of promoting stability within the general framework of the existing *Règles* are considered separately below.

(a) The promotion of nomenclatorial stability through the amplification, clarification and extension of the "Règles"

9. Contributions towards the stabilisation of zoological nomenclature to be obtained from general and particular provisions in the "Règles" respectively: The bulk of the provisions in the *Règles* are of a general character but a few relate particularly to the procedure to be followed for linking particular names to particular species. Each of these classes of provision is capable of making a contribution towards the attainment of stability in zoological nomenclature. The nature of that contribution differs greatly, and it will be convenient to consider these two groups of provisions separately.

(i) The contribution towards the stabilisation of zoological nomenclature obtainable through the amplification and clarification of the general provisions of the "Règles"

10. Directions in which the amplification and clarification of the general provisions in the "Règles" could contribute towards the stabilisation of zoological nomenclature: If we look first at the general provisions in the *Règles* as a whole, we are immediately struck by the total lack of any provision for the naming of Orders and higher taxonomic categories and the complete inadequacy of the existing provisions relating to the naming

of families and subordinate supra-generic categories. The first of these defects has been directly responsible for the present state of chaos in the nomenclature of Orders and higher categories; the second must take the blame for the state of confusion and uncertainty in which the nomenclature of families and sub-families is at present engulfed. In quite a different field also the existing provisions of the *Règles* are so unsatisfactory that instability and confusion in nomenclature is often inevitable, for the Article (Article 19) which purports to prescribe the circumstances in which defectively formed names (whether generic or trivial) are to be emended is itself so badly drafted that, far from introducing order in relation to this class of problem, that Article itself actively promotes confusion and uncertainty. These three problems are all of great importance, and stability and uniformity will be materially promoted when solutions are found for them. Fortunately, however, these matters need not detain us here, for as regards each of them the Thirteenth International Congress of Zoology at Paris in 1948 recognised that the existing situation was indefensible and decided that remedial action must be taken as soon as possible. The Congress did not itself forthwith amend the *Règles* in regard to these matters, for it considered that in each case the problems involved were so complex that the first step required was a thorough investigation of the issues involved. The Congress accordingly invited me, as Secretary to the International Commission on Zoological Nomenclature, to undertake such an investigation in regard to each of these matters in conjunction with interested specialists and, having done so, to submit a comprehensive Report on each, with recommendations, for consideration by the next (Fourteenth) International Congress of Zoology when it meets at Copenhagen in 1953. As regards each of these problems I have undertaken extensive preliminary discussions with interested specialists with a view to eliciting the problems upon which decisions will be needed and in each case a stage has now been reached when a general consultation can usefully be initiated with a view to ascertaining what is the general wish of zoologists as to the nature of the reforms to be instituted. Accordingly, for each of these subjects I have prepared—as part of the initial measures by way of preparation for the Copenhagen Congress—a general survey of the issues involved, to each of which I have added questions aiming at obtaining advice from specialists as to the action which it is desirable that the Copenhagen Congress should take. These surveys have now been published in the present volume (Vol. 7) of the *Bulletin of Zoological Nomenclature* as follows: (1) the emendation of names, pp. 4-60; (2) family names and names of allied categories, pp. 61-94; (3) Ordinal Names and Names of Higher Taxonomic Categories, pp. 95-118. The attention of all workers interested in the promotion of nomenclatorial stability is particularly drawn to the foregoing papers, and it is very much hoped that all such workers will respond to the request made in those papers for advice as to the action which can most profitably be taken on the various issues there discussed. For the purposes of the present examination of the problem of the measures which should be taken to promote stability and uniformity in zoological nomenclature, we may take it that, as the result of the initiative shown by the Paris Congress, measures are already in hand which should serve to enable the Copenhagen Congress to devise satisfactory measures for promoting stability in the three fields of nomenclature discussed above. We may, therefore, now turn to

consider in what other directions the introduction of amplifications and clarification of the existing provisions of the *Règles* can be called in aid of the objective with which we are concerned. From the suggestions which have been received from specialists and from the consideration which I have myself given to this subject there are, it seems to me, at least half a dozen ways in which it would be possible to strengthen the *Règles* as an instrument for the promotion of stability and uniformity in nomenclature. These are discussed in the following paragraphs.

11. Suggested addition of a Sub-Title or Preamble to the "Règles" defining the purposes for which zoological nomenclature has been established: It is a common practice for sets of rules devised for some particular end not merely to be given some appropriately informative title but also for that title to be followed either by some explanatory sub-title or for the rules themselves to be prefaced by a Preamble setting out the purposes for which the rules in question have been adopted. The *Règles* governing zoological nomenclature contain neither such a sub-title nor such a Preamble. Accordingly, there is nothing to show what are the general purposes for which the rules of zoological nomenclature have been established. It has been suggested that it would be helpful if this omission were to be rectified by the addition of words, either in the form of a sub-title or (perhaps more appropriately) as a Preamble introducing and in a sense governing the entire Code, making clear the purposes for which rules of zoological nomenclature have been established, including in particular the purpose of providing a uniform and stable system for the naming of animals. Such a Preamble would naturally state that zoological nomenclature has been established by the zoologists of the world for the twofold purpose, first, of providing a system for the naming of taxonomic units, both Recent and Fossil, belonging to the several taxonomic categories recognised in the classification of animals, and, second, for the purpose of ensuring that every species shall always be known by the same name and that that name shall never be used for any but that species, thereby establishing and promoting uniformity and stability in the names of animals, rendering possible the free interchange, between workers of every nation and of every language, of knowledge acquired in regard to animals, and, by this means, making a positive contribution to the acquisition and dissemination of knowledge in regard to zoology.

12. Suggested rewording of the plenary powers provisions for the purpose of making it clear that the object of those powers is to promote uniformity and stability in zoological nomenclature: In the form in which the Commission's plenary powers were amended by the Paris Congress of 1948, at the time when those powers were formally incorporated into the body of the *Règles*, those powers are quite sufficient to enable the Commission to promote, subject to the safeguards imposed, the policy of securing the uniformity and stability which all zoologists have at heart. It has been suggested, however, that it is desirable that the phraseology used in the plenary powers Article of the *Règles* which was lifted almost intact from the resolution adopted by the Monaco Congress of 1913 should be revised in order to bring it into harmony with current ideas and current needs. The

Plenary Powers Resolution of 1913 represented a victory by those zoologists, the great majority at that Congress, who were aghast at the changes caused by the unqualified application of the Law of Priority agreed upon at Berlin in 1901, over the more conservative school of zoologists who were then strongly entrenched in the membership of the Commission. The majority, having succeeded in carrying their main point—the need in certain cases to curb the full force of the Law of Priority—very wisely did not press their advantage too rigorously; hence it is that the Plenary Powers Resolution, which was drafted by the Commission when it decided to bow to the general will of the zoologists present at the Monaco Congress, bore, and the Article in the *Règles* in which that Resolution has now been incorporated still bears, unmistakable evidence of the reluctance of its authors to recognise the need for placing any restriction upon the Law of Priority. The suggestion that has been made is that the expression "greater confusion than uniformity" which for the foregoing reasons found its way into the Resolution as originally drafted in 1913 should be replaced with a more appropriate condition and one more in harmony with current ideas. It has accordingly been suggested that, as part of any general plan for the promotion of stability in nomenclature, the plenary powers provision should be reworded by the omission of the phrase quoted above, there being inserted in its place a condition that the plenary powers are for use where, in the judgment of the Commission, the use of those powers is clearly necessary for the purpose of promoting stability and uniformity in zoological nomenclature.

13. The removal of obscurities, and the filling-in of gaps, in the "Règles" as a method of promoting uniformity and stability in zoological nomenclature: One of the most potent causes of instability in nomenclature in the past has been the grave doubts as to the meaning to be attached to particular provisions in the *Règles* (for example, the meaning to be attached to the expression "nomenclature binaire" as used in Article 25), these doubts having inevitably led to differences of interpretation and consequently to lack of uniformity. Another equally potent cause of instability and divergence of nomenclatorial practice has been the total lack of provision in the *Règles* in regard to whole topics, such as the treatment to be accorded to names bestowed upon infra-subspecific forms. Many of the obscurities which formerly marred the *Règles* were removed by the Paris Congress in 1948 when also many gaps in the *Règles* were filled in. While, therefore, much progress in this field was made by the Paris Congress, it would be unreasonable not to expect that there still remain obscurities and omissions which, until remedied, will continue to lead to differences of interpretation and practice and therefore to instability in zoological nomenclature. It is, therefore, of great importance that, whenever a worker encounters a problem for which there is either no provision or no clear provision in the *Règles*, he should at once bring that problem to the attention of the International Commission, so that that body may formulate recommendations for dealing with the question concerned, for submission to the next Congress. Within the fields concerned, the settlement in this way of outstanding problems may be expected to make a valuable contribution to the furtherance of uniformity and stability in nomenclature.

14. The need for avoiding unnecessary changes in names when any amendment is made in the "Règles" or an addition is made thereto :

For the reasons just explained it is important at times either to clarify some provision in the *Règles* in order to promote uniformity and consequently stability by ensuring that in relation to any given problem there shall be clear guidance as to the procedure to be followed. When such clarifications are effected, it is important at the same time to pay regard to the fact that, prior to the introduction of the clarification concerned, specialists will have dealt with the problem in one way when dealing with one name but in other ways when dealing with other names. If the very improvement so introduced is not itself to give rise to undesirable name-changing in cases where hitherto mutually inconsistent principles had been applied in dealing with the problem concerned in relation to different names, it is essential that provision should be made in the *Règles* for the grant of exceptions to the new provision where its application would lead to the changing of particular names. Naturally, any cases of this kind can always be dealt with satisfactorily under the plenary powers, but it is important that it should be made clear that it is the purpose of the *Règles* that such exceptions should be made in all cases where they are required if unnecessary changing of names is to be avoided; for this purpose it is desirable that the amended Article should contain an express provision that any case where that Article would lead to the changing of existing nomenclatorial practice should be submitted to the Commission for the purpose of enabling that body to consider whether in the interests of uniformity and stability an exception to the amended Article should be authorised in that case. In some instances where an existing provision in the *Règles* was clarified by the Paris Congress a provision of this kind was inserted, but this was not done in every case, nor was it made clear that the foregoing was a principle of general application, having as its object the avoidance of changes in nomenclatorial practice whenever the meaning of a given Article in the *Règles* is clarified. It will, I think, be generally agreed that the principle set forth above applies with at least as great strength, if not with greater strength when we are concerned not with the clarification of some provision in the *Règles* but with the actual amendment of such a provision. Here again a supplementary provision of the kind suggested above was adopted by the Paris Congress in some instances, e.g. when the Congress amended the provision relating to the rights of a first reviser in determining the relative priority to be accorded to two or more names published for the same species in the same book (1950, *Bull. zool. Nomencl.* 4 : 330), but this was not done consistently in every case as a matter of set purpose. It will, however, be generally agreed (I think) that the insertion of such a provision is desirable in every case where an existing provision of the *Règles* is modified. Somewhat similar considerations arise when the change made in the *Règles* is not the clarification or amendment of some existing provision but the insertion of a provision regulating some matter not previously dealt with. In such cases it will normally be desirable, in the interest of stability, to lay down less rigorous standards for application to names published, or to action taken, prior to the introduction of the new provision than those to be prescribed for application after that date. In addition, it will commonly be desirable to make provision for exceptions, in the interests of stability, similar to those suggested above for cases where an existing provision in the *Règles* is clarified or amended.

15. Importance, in the interest of securing stability, of obtaining supplementary decisions in relation to particular cases, consequent upon the clarification of the "Règles" in certain instances : proposed establishment of an "Official Index of Rejected and Invalid Books in Zoology": As regards the greater part of the provisions included in the *Règles*, the adoption by the Congress of decisions clarifying the meaning of, or amending, the provisions concerned may, as explained above, give rise to the need for the grant of exceptions in certain cases, but will not of themselves call for supplementary decisions of a more general character. The position is different however when we come to consider the position which arises when some portion of the provisions relating to the Law of Priority are affected ; for here, at least in some instances, it may be necessary, when an amendment is adopted by the Congress (even in the clearest possible terms) for additional decisions to be obtained from the Commission as to the application of that decision in particular cases, if the object for which that amendment was made, namely the promotion of uniformity and stability, is to be attained. A good example of this class of case is provided by the decision of the Paris Congress that the expression "nomenclature binaire" till then used in Article 25 had the same meaning as the expression "nomenclature binominale" (1950, *Bull. zool. Nomencl.* 4 : 65) ; this decision was perfectly explicit but nevertheless it is necessary in the case of many books published in the xviiiith century to obtain an express decision from the Commission on the question whether or not the author in that book consistently applied the principles of binomial nomenclature, as required by Article 25, as amended by the Paris Congress. The number of books in respect of the status of which there is sufficient doubt to make it necessary to obtain a supplementary decision of this kind is considerable. The extent to which names published in these books have been employed varies greatly, ranging from cases where the majority of the new names concerned have been used, although the book in question was clearly not written by an author who accepted the principles of binomial nomenclature to cases where, although the book possesses very strong claims to be regarded as a binomial work, all or most of the new names in it have been rejected by the majority of authors. It cannot be questioned that at least in some groups the present indeterminate status of books of this class represents one of the most serious remaining threats to stability in the nomenclature of the groups concerned. It is extremely important therefore in the interests of stability that the status of books of this class should be determined with as little delay as possible, now that the Congress has reached a decision on the underlying question of principle involved ; in each case two questions will call for decision : first, whether in the book concerned the author concerned applied the principles of binomial nomenclature, second, irrespective of the answer given to the foregoing question, whether the rejection or, alternatively, the acceptance of the book for nomenclatorial purposes would be calculated to promote or to disturb uniformity and stability in nomenclatorial usage. According to the answers given to the second of these questions, it may be found desirable in some cases to use the plenary powers either to validate or to suppress the book concerned or some of the names first published in it. Although, as will be appreciated, the settlement of the status of names as published in books of the class discussed above will make an important con-

tribution towards obtaining uniformity and stability in nomenclature, it is not a matter which can be directly furthered by the insertion of any additional provision in the *Règles*. The machinery is available through the powers conferred on the International Commission by the Congress, and it is therefore for specialists to make use of that machinery. The Paris Congress recognised the importance of placing on record in the most formal and authoritative way all decisions taken by the International Commission on individual cases, both when those decisions were taken under its plenary powers (1950, *Bull. zool. Nomencl.* **4** : 65, 332) or under its judicial and interpretative functions (1950, *ibid.* **4** : 261, 333). It accordingly decided that all such decisions should be recorded in special Schedules annexed to the *Règles* and should thus become an integral part of the international system of zoological nomenclature. The only disadvantage of this arrangement, so far as concerns the availability of individual books, is that under it the titles of books which were suppressed by the Commission under its plenary powers would be recorded in one Schedule, while the titles of works which were found to be invalid by the Commission acting in its judicial capacity would be recorded in a different Schedule. It would clearly be more convenient to zoologists if the titles of all rejected works were to be recorded together. I believe therefore that the following suggestion made by Dr. Ernst Mayr (*American Museum of Natural History, New York*) (*in litt.*, 31st October, 1951) will be warmly welcomed : "It occurs to me that it would be most useful to zoologists if the Commission would initiate a list of rejected publications, that is, publications, the names in which are not available for nomenclatorial purposes." The adoption of the course suggested by Dr. Mayr would, I consider, represent a definite improvement on the procedure agreed upon in this matter by the Paris Congress. I accordingly suggest : (1) the decisions cited above taken by the Paris Congress in relation to the recording of decisions by the Commission, under which a given book is either suppressed under the plenary powers or declared by the Commission to be unavailable under the *Règles* should be revoked and (2) that, in place of the provisions so revoked, the following new provisions should be enacted : (a) an Article to be added to the *Règles* establishing an "Official Index of Rejected and Invalid Books in Zoology"; (b) words to be added to the Article defining the powers and responsibilities of the International Commission making it the duty of that body to inscribe on the foregoing *Official Index* the title of every book or paper relating to zoology which it may either (i) suppress for nomenclatorial purposes under its plenary powers or (ii) declare in its judicial capacity to be objectively unavailable under the *Règles*, together with particulars of the name of the author of the book or paper concerned, and the date on which it was published; (c) an additional Schedule to be annexed to the *Règles* for the reception of the proposed "Official Index."

16. Need for the elimination, in the interests of uniformity and stability, of generic names of indeterminate application : As every systematist is aware, one of the most serious threats to uniformity and stability in nomenclature is the danger to be apprehended from names of indeterminate application, for, until, by means of the processes prescribed by the *Règles* a precise content is given to the concept (whether at the genus level or at the species level) represented by a given name, that name must be regarded as a

potential danger to the nomenclature of the group concerned. The problems here involved in the case of generic names are somewhat different from those in regard to specific trivial names, and they are on the whole less serious in the sense that in every case it is possible under the *Règles* to ascertain precisely how a generic name should be applied, while this is not so in the case of specific trivial names. We may therefore conveniently consider first the present problem as it arises in connection with generic names. In every group which has not been subjected to a thorough nomenclatorial revision in the light of the provisions in the *Règles* there exist nomenclatorially available generic names—in many cases of great age and therefore of high priority—for which no type species has been determined. The provisions (Article 30) in the *Règles* to which recourse has to be had for determining the type species of any given nominal genus are such that in the great majority of cases it has always been possible to obtain an absolutely conclusive answer in this matter, while the Paris Congress provided clarifications on the three aspects of those provisions on which previously there had been serious doubt (namely, (a) the nominal species to be treated as originally included species in cases where, in addition to placing certain nominal species in the genus in question, the original author cited also the name of one or more other previously established nominal species as synonyms of the species which he referred to the genus; (b) the nominal species to be treated as eligible for selection as the type species of a nominal genus originally established without any nominal species being expressly cited; (c) the species to be accepted as the type species of a nominal genus in cases where such a genus was established on the basis of an erroneously determined type species). It is therefore now possible to determine with a high degree of precision what nominal species is the type species of any given nominal genus. Accordingly, there is now no reason why the content of any nominal genus should be allowed to remain indeterminate. It is highly important in the interests of nomenclatorial stability that in every group the identity of every nominal genus should be determined in the foregoing manner and in consequence the status of every generic name definitely settled. Experience acquired in connection with groups in which this process has been carried through shows that the determination of the type species of the nominal genera concerned will reveal a certain number of cases where some long-ignored name of high priority should, under the *Règles*, replace some well-known name in common use or worse still where the *Règles* require that some well-known nominal genus should take, as its type species, a species not regarded as congeneric with the species commonly accepted as the type species of that genus, it being necessary in consequence that that generic name should in future be used in a sense entirely different from that in which it is commonly applied. The situation which arises in such circumstances is often serious from the point of view of stability in generic nomenclature, but the problem is not one which calls for any addition to the *Règles*, for one of the main purposes for which plenary powers were granted to the Commission by the Congress was to enable it to nullify threats to stability arising in this way, and the powers so granted are quite sufficient to enable the Commission to discharge its duties in this behalf. There is however one situation in connection with generic nomenclature which calls for special consideration. This is where the nominal species correctly determined under Article 30 of the *Règles* as the type species of a nominal genus

is unrecognisable, that is, where it is impossible to identify, or to identify with certainty, the taxonomic species represented by that nominal species. In such a case the stabilisation of a generic name is not enhanced for practical purposes by the nominal genus so named having had its type species determined. For either (1) some specialists claim to recognise the nominal species and consequently use the generic name in question, while others do not, or (2) the generic name in question remains as a *nomen dubium* and thus constitutes a potential threat to the generic nomenclature of the group concerned, it always being open to later authors to claim to recognise the nominal species concerned and thus to lift the generic name in question out of its obscurity as a *nomen dubium* and to bring it into use in place of the name—possibly a very well-known name—currently used for the genus in question. There is also a third situation (3), where (as in the preceding cases) the type species of a well-known nominal genus is unrecognisable—and that nominal genus is in consequence indeterminate—but where in view of the importance of the generic name in question specialists have deliberately ignored the fact that the nominal genus in question was indeterminate and have continued to use the generic name in question on the tacit—but nomenclatorially quite unjustifiable—assumption that, whatever might be the taxonomic species on which the original author founded the nominal species which is the type species of the genus, that taxonomic species must have been congeneric with the species commonly treated today as belonging to that genus. An example of this class of case is provided by the nominal genus *Lumbricus* Linnaeus, 1758, where, although the nominal species (*Lumbricus terrestris* Linnaeus, 1758), which is the type species of that genus, is unrecognisable, the generic name *Lumbricus* has been retained in use on the assumption that, whatever may have been the species to which Linnaeus gave the trivial name *terrestris*, that species must have been one of the species currently referred to the genus *Lumbricus*. As long as this class of case is allowed to continue, the generic names concerned are clearly in a highly unstable and unsatisfactory condition. Every such case—when concerned with an important name—should certainly be settled in whatever way the specialists concerned may consider to be the most appropriate way; no addition to the *Règles* is however required for this purpose, for a definite decision could be obtained from the Commission under its existing powers—though perhaps in some of these cases a more satisfactory solution might be obtained by the establishment of a neotype, if neotypes were to be granted official recognition (see paragraph 21 below). If no special action is called for in the case of generic names belonging to what I have called Class (3), it is quite otherwise when we turn back to consider the position of generic names belonging to Classes (1) and (2). Names belonging to Class (1) (names of genera, the type species of which are regarded by some specialists as recognisable but by others as unrecognisable) raise a question which is essentially indistinguishable from that raised at the species-name level by trivial names which are regarded as recognisable by some, but not all, authors; we may therefore leave this class of generic name for consideration in paragraph 18 below, where a suggestion is submitted for eliminating the instability and confusion which arises—and, failing the incorporation of appropriate provisions in the *Règles* are bound to continue indefinitely—when there is disagreement among specialists as to

whether the taxonomic species represented by a given nominal species is or is not recognisable. The position as regards generic names belonging to Class (2) (names of nominal genera having, as their respective type species, nominal species which specialists are agreed are unrecognisable) is entirely different. There is nothing whatever to be said in favour of the retention of availability by such generic names; their elimination cannot possibly cause the slightest inconvenience or disturbance, while their retention merely perpetuates a threat to nomenclature without serving any useful purpose whatever. It is accordingly suggested that there should be included in the *Règles* a provision requiring the International Commission on Zoological Nomenclature, on the application of specialists, to place on the *Index of Rejected and Invalid Generic Names in Zoology*, as a name rejected for the purposes of the Law of Priority but not for those of the Law of Homonymy, the generic name of any nominal genus, in respect of which, after the expiry of a period of six months (a) from the publication of the application in question in the *Bulletin of Zoological Nomenclature*, and (b) from the giving of public notice of the receipt of that application in like manner as though it were one involving the possible use of the plenary powers, the Commission is satisfied that, from the standpoint of the general body of workers in the group concerned, the generic name in question is a *nomen dubium*.

17. Need for the elimination, in the interests of uniformity and stability, of "nomina dubia" at the species-name level : We have seen that, except in one case—which we have reserved for later consideration—the *Règles* in their existing form are, subject to the addition suggested at the end of the preceding paragraph, adequate both to determine the identity of nominal genera by the determination of their type species and also to ensure that the process of such determination shall not give rise to confusing and objectionable changes in the use of generic names. When, however, we turn to consider the parallel problem presented by *nomina dubia* at the species-name level, we find a very different situation. Prior to the Paris Congress of 1948, the provisions in the *Règles* in relation to this problem were so incomplete and unsatisfactory that the number of cases where it was impossible definitely to identify the taxonomic species represented by the nominal species bearing a given trivial name was very large. The position was however greatly improved by the action of the Paris Congress (a) in giving express recognition to the concepts represented by holotypes, syntypes and lectotypes, and (b) in thoroughly revising Article 31. In consequence it is now often as readily possible objectively to identify the taxonomic species represented by a nominal species previously regarded as unidentifiable (the trivial name of which had therefore previously been regarded as *nomen dubium*) as it is to provide an objectively determinate application for a nominal genus, for which till then no type species had been ascertained (and of which therefore the name had up till then been regarded as *nomen dubium*). In many cases however (e.g. where the original type material has disappeared) it is impossible to provide a nominal species with an unchallengeable (because objective) identification, and in consequence the trivial name of that nominal species remains a *nomen dubium*. The names which fall into this class may be of two kinds: (1) names of nominal species which some specialists claim to be able to identify, but others are unable to

do so, (2) names of nominal species which no specialists claim to be able to recognise. Special consideration was given by the Commission and the Congress in Paris in 1948 to names falling in the first of these groups, it being considered necessary to make specific provision for dealing with this subject, in view of the strong objection (on the grounds both of uniformity and stability) to the use for a given species of different trivial names by different specialists, one of which was regarded by some of the specialists as a *nomen dubium*. In order to deal with this particular problem, the Paris Congress agreed to insert in the *Règles* a provision prescribing that in such a case the question at issue is to be referred to the Commission for decision (1950, *Bull. zool. Nomencl.* 4 : 76).

18. Suggested addition to the "Règles" of a provision for the suppression of specific "nomina dubia" in cases where specialists have been unable to provide a definite identification of the taxonomic species so named: In every group, as we all know from experience, there are nominal species so inadequately described that identification of the species concerned is considered by specialists to be impossible without reference to the original type material and of which the type material has disappeared or at least its present whereabouts is unknown. The specific trivial names of such nominal species represent *nomina dubia* of a peculiarly useless and objectionable kind: such names are useless because they do no more than clutter up catalogues with names which cannot be applied to any known species, and dangerous because it is always possible that by intensive bibliographical or similar study some zoologist, who is also an eminent authority on the history of zoology, may be able—at the cost of great labour—to bring forward unquestionable evidence in favour of the identification of nominal species for over a century regarded on all hands as unidentifiable, with the result that trivial names which have long slumbered in obscurity as worthless *nomina dubia* suddenly acquire the right under the Law of Priority to supersede the trivial names by which the species concerned are universally known. That this is no hypothetical risk is shown by the painful experience suffered only last year by ornithological nomenclature when, as the result of scholarly investigations of great ingenuity, Dr. Erwin Stresemann established beyond question the identity of the taxonomic species represented by a considerable number of nominal species published by Gmelin in 1789, the names of which by common accord among ornithologists had been treated as *nomina dubia* for no less than 161 years (1950, *Auk* 67 : 66-88). Dr. Stresemann expressed regret that under the *Règles* it was necessary to accept what he called his "excavated antiques" as the names of the species concerned, which had for so long been known by other names. At the same time Dr. Stresemann stated that in his view some at least of the changes involved "would be utterly confusing" and therefore that it was desirable that the Gmelin names concerned should be examined individually; he added: "Quick action seems urgent." Proposals for dealing with this particular case have since been submitted to the International Commission by the Standing Committee on Ornithological Nomenclature established by the International Ornithological Congress held at Uppsala in July, 1950. This incident is however extremely relevant to the problem with which we are here concerned, for it illustrates in a most vivid fashion the dangerous threat to nomenclatorial stability represented by this class of specific *nomina*.

dubia. Moreover, it was precisely for the purpose of rendering impossible the resuscitation of ancient names of unrecognised nominal species of this kind and the consequent discarding of well-known names continuously used for the species concerned for many decades or even (as in the example quoted) in some cases for over a century and a half that the introduction of a Law of Prescription limiting the application of the Law of Priority was proposed and strongly urged by Scandinavian and French zoologists at the International Congress of Zoology in Paris three years ago; it was with a similar object that at Amsterdam in 1951 the same proposal was urged upon the International Congress of Entomology by the eminent Swiss entomologist M. Ch. Ferrière. The protection of nomenclatorial practice from danger from this class of name represents without doubt the main object not only of all those zoologists who advocate the recognition in the *Règles* of some form of Law of Prescription, but also of those who, without putting forward any particular scheme, have made it clear that they consider it essential that effective means should be found for putting an end to this, as they consider, abuse of the principle represented by the Law of Priority. Those who hold these views, are in no sense enemies of the Law of Priority, the essential rôle of which in zoological nomenclature they fully recognise; they do however urge that in the interests of the prestige of the Law of Priority itself, no less than in the interests of nomenclatorial stability, means must be found to render impossible any further changing of names through the introduction of names long rejected as *nomina dubia*. In the earlier part of the present chapter I have drawn attention to certain weaknesses necessarily inherent in any proposal for the establishment of a Law of Prescription and I have suggested that an effort should be made to attain the same ends by means which are not open to these disadvantages. In the subsequent analysis of the problem, I have suggested for consideration various measures which, if adopted, would, I believe, contribute to the desired end. These measures, valuable as (I believe) they would be, would fall short of securing the degree of stability in nomenclature which it is the general wish of zoologists to secure, unless they were supplemented by effective measures (a) for protecting current nomenclatorial usage from attack at the species-name level from trivial names currently treated by specialists as being the trivial names of taxonomically unrecognisable nominal species, and (b) for putting an end to the confusion which arises when the majority of interested specialists so regard a given trivial name but one or a few such specialists claim to be able to recognise the species in question and accordingly cause confusion and unnecessary name-changing by discarding the trivial name currently applied to the species in question in favour of the trivial name of the nominal species, the name of which had previously been regarded as a *nomen dubium*. A particularly important group of trivial names falling in the latter group are the trivial names of nominal species which are the type species of nominal genera, for in every such case there is a twofold state of uncertainty and confusion, first, at the species-name level, second, at the genus-name level. For the purpose of eliminating the doubt, uncertainty and confusion which at present arises at the species-name from the foregoing causes, a solution is here suggested parallel to that submitted in paragraph 16 above in relation to the corresponding problem at the genus-name level. This proposal is that there should be included in the *Règles* a provision requiring the International

Commission on Zoological Nomenclature, on the application of specialists, either (1) to place on the *Official Index of Rejected and Invalid Specific Trivial Names in Zoology* as a name rejected for the purposes of the Law of Priority but not for those of the Law of Homonymy, the trivial name of any nominal species, in respect of which, after the expiry of a period of six months (a) from the publication of the application in the *Bulletin of Zoological Nomenclature*, and (b) from the giving of public notice of the receipt of that application in like manner as though it were one involving the possible use of the plenary powers, the Commission is satisfied that, from the standpoint of the general body of workers in the group concerned, the specific name comprising the trivial name in question is a *nomen dubium*, or (2) if the Commission is not so satisfied, to give a ruling, under the procedure agreed upon by the Paris Congress when confirming the recommendation submitted by the Commission in relation to Article 31 in Conclusion 11(2)(g)(3) at the Fourth Meeting held during its Paris Session (see 1950, *Bull. zool. Nomencl.* **4** : 76), as to the species to which the trivial name in question is to be treated as applying.

(ii) The contribution towards the stabilisation of zoological nomenclature obtainable through the extension of the particular provisions in the "Règles" relating to the identification of nominal species with the taxonomic species represented thereby

19. Action taken by the Thirteenth International Congress of Zoology, Paris, 1948, to promote stability of nomenclature at the species-name level: Up to the meeting of the Thirteenth International Congress of Zoology in Paris in 1948, by far the weakest part of the *Règles* was that concerned with the procedure to be followed in identifying a nominal species with the taxonomic species represented thereby. For the *Règles* contained only the most scanty and inadequate provision (Article 31) in relation to this subject (there referred to as the "subdivision of a species") and no mandatory provisions of any kind in relation to the status of the type specimens of species (the only reference to the concept of a type specimen appearing in the form of a recommendation in Section "A" of the *Appendice* to the *Règles*). A very important step in the direction of stabilising nomenclature was taken when the Paris Congress remedied the defects noted above, (a) by recognising and defining the concepts "holotype," "syntype" and "lectotype" (1950, *Bull. zool. Nomencl.* **4** : 185-186), and (b) by the decision to substitute for the existing Article 31 a new Article setting out in detail the procedure to be followed in determining the specimen to be taken as being the lectotype (or the figure, etc. to be taken to represent the lectotype) in the case of a nominal species based upon two or more specimens, and, where no lectotype for such a species had previously been designated or indicated, the procedure to be followed in selecting one (1950, *ibid.* **4** : 74-76).

20. Directions in which further advances could be made in providing for the stabilising of the trivial names of species: The reforms instituted by the Paris Congress make it possible in a very large number of cases to identify the taxonomic species represented by a given nominal species with absolute certainty, for those reforms provide a means for establishing a single specimen (either the holotype or, where no holotype ever existed, the lectotype)

as the exclusive standard of reference for this purpose. Further, whenever the original description contained a precise indication of the locality in which the type material was obtained, the reforms instituted by the Paris Congress make it possible to determine with precision, in the case of a polytypic species, which of the various subspecies is to be treated as being the nominotypical subspecies. It would be difficult to overrate the practical importance of the decisions taken by the Paris Congress in this matter, for they cut right through the maze of uncertainties and doubts which previously often made it impossible to determine how a given trivial name should be applied and therefore impossible to secure a uniform and stable use for that name. Nevertheless, these decisions fall far short of covering the whole field. First, they provide no means for identifying the taxonomic species represented by a given nominal species in cases where there is no surviving type material or where such material as has survived is in such bad condition as to be useless as the basis for further comparative study of the morphology of the species concerned. If the suggestion submitted in paragraph 18 above is approved, the danger at present to be apprehended from specific *nomina dubia* of this class will be eliminated in all those cases where the trivial names in question are either not at present used at all or are used by only a few specialists ; we should still be left however with the very important and numerous cases where there is a genuine doubt as to the way in which a given name should be employed but where nevertheless the name in question is in fact in general use. Second, the Paris reforms do not themselves make any direct contribution to the identification of the subspecies of a polytypic species to be accepted as the nominotypical subspecies, in cases where the locality cited in the original description is either too vague to be of service from this point of view or (as often happens with the older described species) is manifestly incorrect or where no locality at all is cited in the original description. Thus for a large group of polytypic species, including most of those, the names of which were published in the xviiith century, the great majority of which are therefore extremely common and well-known species, nomenclatorial stability at the subspecies-name level is unattainable until remedial action is taken by the Congress. Third, the Paris decisions do not provide any means for the stabilisation of the names of fossil species, where the original description contains inadequate or incorrect information regarding the geological age of the formation in which the type material was obtained and the horizon in which it was situated. These are serious defects, each of which calls for attention in any comprehensive scheme for the promotion of stability in zoological nomenclature, for, until suitable remedies are provided in the *Règles*, uncertainty as to the proper use of, and therefore instability in the application of, large numbers of names—many of them of the highest importance—will inevitably continue at the species-name level. Each of these problems is accordingly considered below.

21. Proposed recognition of the "neotype" concept as a means for promoting stability in specific nomenclature : At their meetings held in Paris in 1948 both the International Commission on Zoological Nomenclature and the Thirteenth International Congress of Zoology had under consideration the question whether provision should be made in the *Règles* for the recognition of neotypes. As is well known, the insuperable difficulty encountered in

securing firm identification for species for which no type material has been preserved or for which the surviving type material is in such bad condition (as is commonly the case with fossil species) as to render definite identification impossible has led many specialists in recent years to erect so-called "neotypes" as the standard unit for reference purposes for the species concerned. These privately established "neotypes" possess no standing in nomenclature and are therefore incapable of contributing to stability in nomenclature in any way. It was these reasons that prompted the submission to the International Commission of the proposal considered in Paris that means should be found for the recognition in the *Règles* of the neotype concept. The Commission was sympathetic to this proposal but felt that it was one which required further investigation with interested specialists before decisions could appropriately be taken, particularly as regards such matters as the safeguards to be adopted to prevent the abuse of the neotype system, if recognised, and the procedure to be devised for ensuring that neotypes should be adequately described, and located in a suitable institution where they would be properly looked after and made available to specialists for comparative study. This view was shared by the International Congress of Zoology which accordingly invited me, as Secretary to the International Commission on Zoological Nomenclature to undertake an investigation of the problems involved in conjunction with interested specialists, with a view to the submission of a comprehensive Report, with recommendations for consideration by the Fourteenth International Congress of Zoology when it meets in Copenhagen in 1953. In compliance with the foregoing instructions I have prepared a detailed survey of the problems on which decisions will, in my view, be needed, before workable provisions in regard to neotypes could be introduced into the *Règles*, the purpose of this survey being to elicit the views of interested specialists on the problems involved. The survey so prepared has been published as the sixth of the seven such surveys which I was asked by the Paris Congress to undertake. It appears on pp. 131-147 of the present volume of the *Bulletin of Zoological Nomenclature*, to which readers are therefore referred. It is sufficient here to note that, if (as I believe will be found to be the case) it proves possible to devise a workable system for the recognition of neotypes, the development so achieved will provide an important contribution to the stabilisation of the names of species which, through the lack or inadequacy of the original type material, could otherwise never be identified with certainty.

22. Instability in nomenclature at the species-name level arising out of the lack of provisions in the "Règles" for determining the locality to be accepted as the type locality of a given nominal species : Every taxonomist whose studies have led him to consider the position of the older nominal species, particularly those described by Linnaeus in the 10th and 12th editions of the *Systema Naturae* has frequently been brought to a standstill by the impossibility of determining the locality to be accepted as the type locality for the nominotypical subspecies of polytypic species. If we take for example the butterflies, the group of which I possess detailed first-hand knowledge, we find that a most serious state of confusion has arisen through lack of provisions in the *Règles* for dealing with this subject. If we take the butterflies described by Linnaeus, we find that in very few cases only is a reasonably

definite type locality provided ; we find also that a large majority of the species concerned are polytypic, many, indeed, having large numbers of highly differentiated subspecies distributed—in the case of the Palaearctic species—over the greater part of Europe and temperate Asia, as well as (in many cases) the portion of Africa north of the Sahara. In highly constant species not differentiated into distinct subspecies the locality in which the type specimen was originally obtained is a matter of interest to the taxonomist but possesses no nomenclatorial significance. It is far otherwise with polytypic species, for in their case a knowledge of the precise locality in which the type material was obtained may represent an essential factor in the determination of the subspecies to be accepted as the nominotypical subspecies of the species in question. The older the nominal species concerned, the more likely is this to be the case, for a high percentage of the xviiith century and early xixth century original descriptions of species are quite insufficient to permit of identification at the subspecies level. In such cases the lack of any rules in the *Règles* relating to the determination of the localities to be accepted as type localities is responsible for a serious element of confusion—and, what is more, an element of confusion which, in the present state of the *Règles*, is absolutely irremediable. To continue as our example the Linnean Palaearctic butterflies, it can be affirmed without hesitation and without the slightest fear of contradiction that the lack of provision in the *Règles* for the determination of type localities represents the major element of confusion and uncertainty remaining in the nomenclature of this group of species. Almost all the species in question are polytypic and in practically none of them is the direct evidence given by Linnaeus sufficient to provide a definite locality for the nominotypical subspecies. In these cases therefore the lack of provisions in the *Règles* in relation to type localities has led to the ridiculous situation that, for the species concerned, several, and, in many cases, numerous subspecies have been distinguished and named but no one knows—and there is no means of ascertaining—which of these subspecies is the nominotypical subspecies and which therefore of the commonly accepted subspecific trivial names is no more than an invalid (subjective) synonym of the trivial name of the species itself and its nominotypical subspecies. It is quite certain that until this deplorable situation has been remedied, no stability can be obtained for the names of some of the commonest Palaearctic species in this group. I have taken the butterflies as an example because I happen to know about them, but in this respect this group does not differ in any essential from other groups. The problem with which we are concerned is therefore a general one and will need to be dealt with as such.

23. Suggested provisions for putting an end to instability in the names of subspecies due to inadequate information regarding type localities : From the nomenclatorial point of view the instability in nomenclature arising from the lack of adequate information regarding the type locality of a given species is essentially similar to that which arises in the case of nominal species, when there is uncertainty as to which of the originally included syntypes is to be regarded as the lectotype of the species concerned. The latter problem is dealt with in the *Règles* in Article 31, which, as amended by the Paris Congress (1950, *Bull. zool. Nomencl.* 4 : 74-76), now contains a set

of rules parallel to those given in Article 30 for the purpose of removing doubts as to the use of generic names by the determination of the species to be accepted as the type species of the genera concerned. In these circumstances, it is suggested that a similar procedure should be adopted for the purpose of getting rid of nomenclatorial instability arising from doubt as to the locality to be adopted as the type locality of the nominotypical subspecies of a given polytypic species. If this general procedure is approved, the problem with which we are concerned becomes relatively simple, for all that we have to do is to examine the rules set out in Article 31 (as amended), which, as explained, are essentially the same as the long-established rules in Article 30 and to consider which of those rules should be included in an appropriately modified form in the Article to be inserted in the *Règles* in regard to type localities. The following analysis of these rules has been prepared for the consideration of specialists. As in the case of the existing rules in the two Articles referred to above, the rules for the determination of the type locality of a given nominal species should be applied successively, and in the following analysis it has been assumed that there will be a provision to this effect :—

- (1) *Rule (a)* ; The first rule should clearly be that, where an author himself designates a type locality, that locality is to be accepted as such (type locality by original designation).
- (2) *Rule (b) (indication of a type by the use of the words "typicus" or "typus")* ; In the form in which this rule appears in the existing Articles 30 and 31 this rule would not be appropriate in the case of type localities. By analogy it would however be suitable at this point to insert a rule prescribing that, where the label attached to a holotype or, as the case may be, the lectotype of a species gives a more precise indication of the type locality of a species than that given in the original description of the species, the more detailed type locality so given is to be accepted as the type locality of the species concerned, when a subsequent author publishes particulars of the more detailed type locality given on the label (type locality by original indication).
- (3) *Rule (c) (type by monotypy)* ; This rule would not be needed in a set of rules relating to type localities, for, where a nominal species is based upon a single specimen, the type locality of that species will already have been determined either under Rule (a) or under Rule (b).
- (4) *Rule (d) (type by tautonymy)* ; The trivial names of species and subspecies frequently consist of neo-Latin words in adjectival form based upon the name of the locality in which the species was first obtained (e.g. *zermattensis*, *adriaticus* (in the case of marine animals), *altaianus*). I have no doubt that there are cases also where a trivial name consists of the precise name of the locality in which the species was first obtained, where that place name has the appearance of a Latin word, although I cannot at the moment recall such an instance. It is suggested that there should be a rule under which the locality indicated in the trivial name of a species or subspecies shall be accepted as the type locality of that species or subspecies in cases where the

type locality has not been determined under any of the preceding rules (type locality by absolute or virtual tautonymy).

- (5) *Rule (e) (exclusion of certain elements from consideration)* : This rule, as it appears in Article 30, is misplaced, for it contains nothing but certain qualifications as to the manner in which a type species can be selected for a genus by a subsequent author, and it should therefore form part of Rule (g), the rule dealing with subsequent selection. For similar reasons a rule on the lines of Rule (e) clearly should not be inserted at this point in the rules to be laid down for determining the type locality of a species. Turning to the three sub-rules included in Rule (e) in Article 30, the first is entirely unnecessary if the Rule relating to the subsequent selection of a type locality is properly drafted, for that Rule should be so worded as to make it clear that no locality can be validly selected as the type locality of a species, if it was not included among, or comprised within one of, the localities cited at the time when the species in question was originally described. The second sub-rule in Article 30 deals with a question which does not arise in connection with the determination of a type locality. The third sub-rule (which excludes from eligibility for selection as the type species of a genus a species only doubtfully referred to that genus by the original author of the name of that genus) could appropriately be inserted in a modified form in the provisions relating to type localities as a provision that a locality only doubtfully cited by the original author of a species should not be eligible for selection as the type locality of that species. It would be more appropriate however that this provision should not be included in the series of rules which we are now considering but should find its place in a general provision (corresponding to the provision agreed upon by the Paris Congress for inclusion in the revised text of Article 30—see 1950, *Bull. zool. Nomencl.* 4 : 179-180) which would prescribe that the localities to be regarded as having been originally cited for a given nominal species shall be (i) the locality or localities cited in the original description of that species (including any more detailed locality ascertainable from the label attached to the holotype or, where no holotype was designated, the syntype later selected to be the lectotype) or any restricted locality comprised within one of the localities aforesaid, and (ii) the locality or localities cited in any previously published descriptions cited by the original author as applying to the species in question, but shall not include any locality only doubtfully cited by the original author.
- (6) *Rule (f) (determination of the type species of a genus on the publication of a substitute generic name)* : This Rule contains nothing which could appropriately be adapted for inclusion in the rules for the determination of the type locality of a species. It would be desirable however that at some appropriate point in the new Article there should be inserted a provision making it clear that, when the name of a species is found to be invalid and a new name is published for it, the new

nominal species so established shall have the same type locality as the nominal species for which it has been established as a substitute.

- (7) *Rule (g) (type by subsequent selection)* : In the great majority of the older named species, no type locality was designated and a list of localities—often a long list—was cited. In such cases a precise type locality may be obtainable under the suggested Rule (b) above and in a few cases also under the later Rules suggested. In most cases however it will be necessary to rely upon the method of subsequent selection in order to determine the type locality of a species belonging to the group concerned. It is proposed, therefore, that there should be a Rule that, where the type locality of a species has not been designated or indicated under any of the preceding Rules, the type locality of that species shall be whichever of the originally included localities is first definitely selected as such at a later date either by the original author or by any other author. The rule should (on the analogy of Article 30 and of Article 31 (as amended by the Paris Congress) contain a provision that the expression "select a type locality" is to be rigidly construed and to exclude the mere mention on a later occasion of a locality as one in which the species occurs, it being necessary, for the purpose of the present Rule, that the author concerned should make it clear either that he is himself selecting the locality in question to be the type locality or (on the analogy of the addition made by the Paris Congress to Rule (g) in Article 30—see 1950, *Bull. zool. Nomencl.* 4 : 181-182) that he considers that that locality had already been determined as the type locality of the species concerned.

- 24.** A series of rules of the kind suggested above would provide a simple and logical means for determining the type locality of any given nominal species on lines parallel to those already adopted in the *Règles* (Articles 30 and 31) for other purposes; in this sense therefore the rules suggested will appear familiar to workers and their operation should be facilitated thereby. There is however one situation which arises in connection with the determination for nomenclatorial purposes, of the type locality of a species which does not arise in connection either with the determination of the type specimen of a species or with that of the type species of a genus, for which it will be necessary to make provision in the proposed rules. The situation is that which arises when, after a very wide originally cited locality, such as "Habitat in Europae sylvis" (the locality given by Linnaeus, 1758 (: 471) for *Papilio hyperantus*) has been defined, under the suggested Rule discussed in paragraph 23(7) above, as meaning for nomenclatorial purposes "Sweden" (Linnaeus in 1758 having given a reference to the entry relating to this species in the first edition of his *Fauna svecica*), it is later found that more than one subspecies of the species in question occurs in Sweden and therefore that the restricted locality "Sweden" is not sufficiently precise to make it possible definitely to determine which of the Swedish subspecies concerned should be regarded as the nominotypical subspecies. The practice generally followed in such cases—a practice which however has no legal basis, there being at present no rules dealing with this

subject—is to select as the restricted type locality of the species some locality situated within the area comprised in the earlier restriction (e.g. in a case such as that cited above, to select some town or other locality in Sweden to be the type locality). This practice has the merit both that it is logically superior to any other that could be suggested and also that, being in accordance with the present general (but entirely unofficial) practice, it represents the procedure best calculated to promote nomenclatorial stability. It is accordingly suggested that at the end of the set rules outlined in paragraph 23 above, there should be added a Rule prescribing that, when, after a type locality has been selected under the Rule discussed in paragraph 23(7), it is found that the restricted type locality so selected is not sufficiently precise, it shall be open to any author further to restrict the type locality of the species concerned by specifying some place or area comprised within the previously selected type locality to be the restricted type locality of the species in question. This rule should be so worded as to permit the selection, if necessary, of a succession of restricted type localities, each situated within the area comprised in the "type locality" last previously so selected.

25. It will certainly be necessary (as indicated in paragraph 23(5) above) to provide in the rules relating to type localities a provision under which a locality cited by an earlier author in a work to which a bibliographical reference is given by the author of a given specific name shall rank as one of the localities originally given for the species so named. On the other hand, we know from innumerable examples that bibliographical references cited by early authors (including Linnaeus himself) are frequently incorrect, the species figured or described by the earlier author (often very badly, by modern standards) not being the same species as that to which the later author first applied a binominal name. Moreover, in many cases old authors cited (as some modern authors still cite) bibliographical references at second hand, without having themselves verified that the species described or figured in the works so referred to was in fact the same species as that to which the author concerned was giving a name. Even Linnaeus himself sometimes cited references to books which he had not seen—doing so, as is clear, for the sake (as he considered) of completeness—for on at least one occasion he published a note regretting the inadequacy of his library and inviting zoologists to send him bibliographical references. In many cases the foregoing represents an inescapable dilemma, but this is not always so. For in (for example) the *Systema Naturae* very large numbers of species are named without an adequate type locality, but with bibliographical references of two kinds of very unequal value, namely (i) references to earlier works by Linnaeus himself, such as the First Edition of his *Fauna svecica* or his *Ölandska och Gotländska Resa*, and (ii) references to earlier works by other authors, most but not all of which had been examined by himself. The references belonging to the first of these classes are in every way superior to those belonging to the second class, for they are based upon the personal knowledge and experience of the author himself (Linnaeus), while the second are not. It is accordingly suggested either (1) that the definition of "originally included locality" proposed in paragraph 23(5) above, should be so modified as to secure that, where there is a choice between (a) a locality or localities given in an earlier work by the same author, and (b) a locality or localities

given in works by earlier authors to which bibliographical references are given, the latter are to be excluded from account, or (2) that, while there should be no mandatory provision on this subject, there should be inserted in the *Règles* a *Recommandation* recommending authors, when selecting a type locality, to give preference to any localities given in earlier works by the author of the specific name in question when bibliographical references to such earlier works were cited in the original description of the species in question.

26. The next question which it is necessary to consider is the procedure to be prescribed for overcoming the difficulty which arises when the original locality or one of the original localities cited by the author of the name of a given species are found to be incorrect. Mistakes of this kind are of frequent occurrence in the older literature, as the result, no doubt, of incorrect information furnished to the author concerned by the collector or other person from whom the original specimens were received. Similar mistakes are not infrequent in the modern literature where expeditions in remote countries have had to rely upon material obtained in the interior by native collectors. A species based upon an erroneous type locality occupies a position very similar to that occupied by a genus based upon an erroneously determined type species. It is recommended therefore that the solution to be adopted should be similar (see 1950, *Bull. zool. Nomencl.* **4** : 158-159), that is, that the Articles dealing with type localities should provide that, a locality cited or indicated by an author in the original description of a species as being the locality or one of the localities in which the type material or part of it was obtained is to be deemed to be such a locality, save that, where specialists are of the opinion that the type locality of the species, as determined under the rules suggested in paragraph 23 above is incorrect, the case is to be submitted to the International Commission on Zoological Nomenclature, which, if satisfied that the type locality is erroneous, is to designate as the type locality of the species concerned, either (a) the actual locality from which the type material was obtained, if this is known from sources other than the original description of the species concerned, or, if that locality is not known, a locality, the selection of which as such would harmonise best with current nomenclatorial practice, except, where the Commission, on the advice of specialists, is of the opinion that that practice is erroneous and that its perpetuation would lead to confusion, in which case the Commission shall designate as the type locality of the nominal species in question whatever locality it may consider to be the most appropriate. It will clearly be important in such cases to secure a thorough consultation with interested specialists before a decision is taken by the Commission, and it is accordingly suggested that the proposed Article (1) should place on the Commission the obligation to give public notice of the receipt of any application for the varying of a type locality in like manner to that prescribed in cases involving the possible use of the plenary powers and (2) should prescribe that a period not of six months but of twelve months shall elapse between the date on which such public notice is given and the date on which the Commission may take its decision on the application in question.

27. In addition to providing for the correction of erroneous type localities, the Article relating to the determination of type localities will need to provide also for the case where no locality was known for a given species at the time

when it was described and named and also for those cases where by inadvertence the locality, though known to the author by whom the species was named, was not mentioned in the original description of the species in question. In the second of these cases the scheme should, it is suggested, provide that the type locality should be determined either under the Rule suggested in paragraph 23(2) above or under the Rule suggested in paragraph 23(4), if either of those Rules were applicable. In all other cases falling in the second of the two main groups indicated above and in all cases falling in the first of those groups, the procedure to be adopted for determining the locality to be treated for nomenclatorial purposes as the type locality of the species concerned should, it is suggested, be the same as that suggested in paragraph 25 for determining the locality to be accepted as the type locality for nomenclatorial purposes of a species, for which an erroneous locality was given at the time when the species concerned was first described and named.

28. It is at least theoretically possible that, after a restricted type locality had been determined for nomenclatorial purposes by means of subsequent selection under the rule suggested in paragraph 23(7) above, the holotype or a syntype available for selection as lectotype that hitherto had been missing might be rediscovered and that specimen might be found to bear a label having on it a detailed locality different from that selected under the Rule referred to above. Again, where a species was originally described without an indication of the locality in which the type material was obtained and a type locality had been determined for nomenclatorial purposes under the procedure suggested in paragraph 27 above, it might happen that the hitherto missing type material might be rediscovered and that, as in the case considered immediately above, that material might bear a label giving the locality in which that material had been obtained. Finally, it might happen that, after a type locality had been determined for nomenclatorial purposes for a species for which no locality was cited at the time when that species was named, there might be discovered manuscript diaries or notes by the author by whom the species had been named giving detailed particulars of the locality in which the type material of that species had been obtained. (A good example of this last-named class of case is represented by my discovery among the Hübner-Geyer manuscripts of a manuscript note by Geyer giving the localities in which had been captured a large number of species named by him without an indication of the locality of capture in his continuation of Jacob Hübner's *Sammlung europäischer Schmetterlinge* (Hemming, 1937, *Hübner* 2 : 138-140). It is suggested that, as regards all cases such as those discussed above, the scheme should provide that the question of the locality to be accepted for nomenclatorial purposes as the type locality of the species concerned should be referred to the International Commission immediately upon the discovery of such supplementary information and that it should thereupon become the duty of the Commission to decide in the light of the additional information furnished what locality was to be taken for nomenclatorial purposes as the type locality of the species in question, the procedure to be adopted by the Commission being similar to that suggested (in paragraph 26 above) to be adopted by the Commission when considering an application for the correction (for nomenclatorial purposes) of an erroneous type locality.

29. Instability in the nomenclature of Fossil Species arising from the inclusion in the original description of species of unduly vague, incomplete or erroneous particulars relating to the locality and situation in which the type material was obtained: The need for nomenclatorial purposes of a clearly defined type locality is often just as essential in the case of Fossil Species as it is in that of Recent Species; so far as I can see, the scheme for determining the locality to be accepted for the foregoing purpose as the type locality of a given species—which was drawn up entirely with Recent Species in mind—is just as suitable for Fossil Species. In one important respect, however, Fossil Species differ in the present context from Recent Species, namely that it is just as important to know the Geological Age of the rocks in which a given fossil was found and the horizon in which it was located as it is to know the locality in which that fossil was discovered. It is suggested therefore that for the purpose of promoting stability in the nomenclature of Fossil Species at the species-name level, the scheme suggested in the immediately preceding paragraphs for determining (for nomenclatorial purposes) the locality to be taken as the type locality should be supplemented by a provision applying the same procedure for determining the Geological Age of the rocks in which the type material of a Fossil Species is to be treated, for which that material was located. The procedure for determining these questions would naturally be the same as that for determining the locality to be accepted as the type locality of a species, whether Fossil or Recent.

30. Instability in the nomenclature of parasitic species arising from the inclusion, in the original description of species, of unduly vague, incomplete or erroneous particulars relating to the host species on or in which the type material was obtained: In the preceding discussion we have concerned ourselves with the nomenclatorial problems arising from defective information regarding the localities in which the type material of species was obtained and, in the case of Fossil Species, the Geological Age of the rocks in which the type material was obtained and the horizon in which it was located. That discussion was concerned with overcoming the difficulties which, in the case of non-parasitic species, give rise to nomenclatorial instability at the species-name level. In the case of parasitic species, however, the instability in nomenclature which may arise from defective information on the subject of the host species may be more serious than that arising from defective information regarding the locality in which was found the specimen of the host species on or in which the type material of the parasitic species was obtained. It is accordingly suggested that the scheme for promoting stability at the species-name level by providing means for determining for nomenclatorial purposes the locality to be accepted as the type locality should be supplemented by a parallel and similar procedure for eliminating instability in the nomenclature of parasitic species for determining the species to be accepted for nomenclatorial purposes as the host species.

(b) The promotion of nomenclatorial stability by the more extended use of existing provisions for stabilising individual names

31. Proposal to supplement the introduction into the "Règles" of provisions designed to promote nomenclatorial stability by a more

extended use of the existing provisions for stabilising individual names: In the preceding Section (Section (a)) we have considered, first, the possibility of promoting stability in zoological nomenclature through the adoption of some novel expedient such as a "Law of Prescription," second, through amplifications, clarifications and extensions effected within the general framework of the existing *Règles*. We must now turn to consider the contribution that can be obtained by a more extended use of the existing provisions for stabilising individual names. It will be convenient for this purpose briefly to review the character and extent of those provisions.

32. Provisions for stabilising individual names instituted prior to 1948 : Prior to the meeting in Paris in 1948 of the Thirteenth International Congress of Zoology, two measures only had been taken to stabilise individual names. These measures which were taken by the Ninth International Congress of Zoology at Monaco in 1913, were the establishment of the *Official List of Generic Names in Zoology*, and the grant to the International Commission on Zoological Nomenclature of plenary powers to suspend the normal application of the *Règles* in cases where the Commission was satisfied that otherwise greater confusion than uniformity would ensue. Though these measures were already thirty-five years old at the time of the Paris Congress, such little use had been made of either during that period that it can confidently be claimed that the full advantages of neither had by that time been appreciated by the general body of zoologists. That so little benefit had been obtained from the foregoing decisions was due in varying extent to two quite distinct causes : first, the interruptions caused by two World Wars and the attitude of defeatism and lassitude which marked the inter-war years ; second, the technical defects of the measures taken by the Monaco Congress to give practical effect to these decisions. The defects which retarded the growth of the *Official List* included : (1) the failure at Monaco to integrate this mechanism into the general body of the *Règles* ; (2) the failure to accord a defined status to names placed on the *Official List* ; (3) the absence of provisions as to the particulars (bibliographical and other) to be included in entries made on the *Official List* ; (4) the fact that decisions placing names on the *Official List* were scattered over a large number of separate *Opinions* published over a long period of years, and in consequence were not at all easily accessible ; (5) the lack even of an index of the names so far placed on the *Official List*. The defects which impaired the value of the Commission's plenary powers included : (1) the failure at Monaco to integrate this important development into the *Règles* themselves, thereby lending colour to the argument later advanced by opponents of this method of nomenclatorial stabilisation that the decision establishing the plenary powers was in some undefined way of inferior status to the decision under which the *Règles* themselves had been established, although in fact both had been established in exactly the same way, namely by a decision taken by an International Congress of Zoology in Plenary Session ; (2) the fact that the use of these powers was made subject to the *Liberum Veto*, under which any one member of the Commission was placed in a position virtually to nullify the grant of those powers, the only remedy in such a case being the cumbrous and slow-moving procedure represented by the appointment of a Special Board by the Chairman of the Section on Nomenclature of the next International Congress of Zoology ;

(3) the lack of any means at the immediate disposal of the Commission for bringing applications involving the possible use of the plenary powers to the attention of interested zoologists. In these circumstances it is not surprising that in the thirty-five years following the institution of these two measures only some six hundred names had been placed on the *Official List* and the plenary powers had been used on only a handful of occasions. Thus, both the reforms instituted by the Monaco Congress had failed to secure even the limited degree of nomenclatorial stabilisation which they were intended to achieve.

33. Provisions for the stabilisation of individual names instituted by the Thirteenth International Congress of Zoology, Paris, 1948 :

The Thirteenth International Congress of Zoology at its assembly in Paris in 1948 evinced a determination to take every immediately practicable measure to promote stability in nomenclature and for this purpose did not hesitate to sweep aside any time-worn procedures which might stand in the way of the achievement of this object. The members of the Commission in Paris shared the general view of the Congress and the Commission was able therefore to co-operate closely with the Congress in devising reforms designed to curb the constant changing of names of the kind which had proceeded uninterruptedly during the inter-war years but which was so repugnant to the post-war sentiment of zoologists, especially, though not all exclusively, those of the rising generation. The matters to which the Commission and the Section on Nomenclature immediately addressed themselves at Paris included : (1) the modernisation and reform of the provisions relating to the grant to the Commission of Plenary Powers to vary the normal operation of the rules for the purpose of avoiding confusion in nomenclature and the incorporation of those provisions in the *Règles* themselves (1950, *Bull. zool. Nomencl.* 4 : 55-56) ; (2) the removal of the major obstacle to stability represented by the long-standing doubt as to the meaning to be applied to the expression "nomenclature binaire" as used in Article 25 (a subject on which unfortunately the Commission itself had formerly found itself in opposition to the general sentiment of zoologists) (1950, *ibid.* 4 : 63-66) ; (3) the reform of the rules governing the *Official List of Generic Names in Zoology*, these reforms including the grant of a high degree of protection for names stabilised in this way, the incorporation in the *Règles* of provisions regulating this *Official List*, and the addition to the *Règles* of a special Schedule in which the *Official List* should in future be recorded, the entries made thereon being thus given the same status as that of any other part of the *Règles* (1950, *Bull. zool. Nomencl.* 4 : 267-268, 271, 334). Having in this way re-formed and revived the two important organs for the promotion of nomenclatorial stability established by the Monaco Congress and at the same swept away the most harmful of the obscurities which had hitherto marred the *Règles*, the Paris Congress turned its attention to devising further means for stabilising individual names. The most important of the measures so taken were : (1) the establishment of an *Official List of Specific Trivial Names in Zoology* with a status similar in all respects to that accorded to the *Official List of Generic Names* under the reforms then agreed upon, including the incorporation in the *Règles* of provisions regulating this *Official List* and the addition to the *Règles* of a special Schedule for its reception (1950, *Bull. zool. Nomencl.* 4 : 270-271, 283-284, 333-334) ; (2) the establishment of an

Official Index of Rejected and Invalid Generic Names in Zoology and of a corresponding *Official Index of Rejected and Invalid Specific Trivial Names in Zoology*, the purpose of these *Official Indexes* being to provide a place of permanent burial for names (whether generic or trivial) which were either suppressed by the Commission under its plenary powers or declared by it to be invalid (thus depriving such names of further power of creating confusion and instability in nomenclature), the inclusion in the *Règles* of provisions regulating these *Official Indexes* and the addition to the *Règles* of *Schedule* for their reception (1950, *ibid.* **4** : 334); (3) the inclusion among the duties of the International Commission on Zoological Nomenclature (which it was then decided should in future be specified in an Article to be included in the *Règles*) of the express duty of maintaining the *Official Lists* and of promoting their development to the full extent of its power (1950, *ibid.* **4** : 269, 271).

34. The "Official Lists" viewed as instruments for the stabilisation of zoological nomenclature: We have already noted (paragraph 32) that the extremely limited use made during the period 1913-1948 of the mechanism provided by the *Official List of Generic Names* was due to an important extent to the inadequacy of the means placed at the disposal of the Commission for operating that mechanism, coupled with the half-hearted spirit in which the Congress had established the *Official List* and in which the Commission had received it into its charge. But it is likely that, even if the Commission had been strictly enjoined by the Monaco Congress to develop the *Official List* by every means at its disposal and had been given all the powers necessary for this purpose, progress with the development of the *Official List*, though far more rapid than in fact it was, would nevertheless have been relatively slow; for it was not until after the end of the First World War in 1918 that comprehensive efforts were made by specialists in particular groups to apply the *Règles* strictly to the names of the genera and species comprised in those groups. Clearly, such a survey is an essential prerequisite to any concerted action for the stabilisation of names in any group, for, until such a survey has been made, it is impossible either to determine which of the important names in the group are invalid and may call for special treatment under the Commission's plenary powers and which names are valid in all respects and are thus immediately eligible for admission to the respective *Official Lists*. In more recent times considerable progress has been made in the carrying out of such surveys and, in consequence, the opportunity for placing large numbers of names on the *Official Lists* is much greater today than ever before and the number of names available for standardisation in this way is likely to grow steadily from now onwards. The circumstances are therefore peculiarly favourable for a forward drive for stabilisation through the *Official Lists*. It was sometimes argued in the past—and may still be argued here and there—that but little benefit is obtained by placing valid names on the *Official List*. But this, it is suggested, is a short-sighted and misconceived point of view if the object is to prevent further upsettings of well-established names. For in fact, however carefully a worker or group of workers may search the literature (itself a time-consuming and undesirable substitute for zoological studies), the accumulations of books and papers published during the best part of two hundred years (1758-1952) is so vast and many of the older works

are so scarce that it is virtually impossible to be sure that even well-known names published 150 years ago and in general use ever since are absolutely safe from attack by older names excavated from long-neglected literature. To take the birds alone, no one a couple of years ago would have supposed that it would be possible to identify considerable numbers of Gmelin's hitherto unrecognisable nominal species and thus to bring his names for those species into use in place of the names which in many cases those species have borne for decades; nor was it to have been expected that new Linnean names would have been unearthed with further consequent displacement of well-established names. Yet both these things have happened and the same process is at work in the nomenclature of other parts of the Animal Kingdom. If the names uprooted by these taxonomic and bibliographical studies had already been placed on the appropriate *Official Lists*, they would not have been liable to immediate overthrow on the publication of the foregoing studies, for under the regulations now governing the *Official Lists* a name once placed upon either of those *Lists* cannot be put on one side, unless and until, on having the facts placed before it, the Commission so directs. But this is not the only reason why the placing of a name on one of the *Official Lists* constitutes an important stabilising factor, for the *Official Lists* constitute—and, as they grow in length, will increasingly constitute—the standard of reference for future workers. Moreover, for non-specialists such as many teachers of zoology and workers in the field of applied biology, the *Official Lists*, when properly developed in accordance with the instructions of the Congress, will, by reason of their authoritative character, provide the indispensable and long-desired source from which such workers can ascertain the valid names for the animals with which they are concerned, without need to have recourse to specialist literature. Thus, the *Official Lists* offer a hitherto undreamt-of means for securing stability for the names of genera and species. All that is needed to secure this goal in any given group is a single concerted effort on the part of specialists in that group for the purpose of preparing the requisite applications to the International Commission. Once that effort has been made and the principal names (generic and trivial) in that group have been placed upon the *Official Lists*, the nomenclature of that group will have freed itself from the risk of constant change and growing confusion and the workers in that group will be free for the first time since the sub-Linnean times of the XVIIIth century wholeheartedly to devote themselves to zoology, unhampered by the need to devote a large part of their time and energy to the consideration of disputed questions of nomenclature.

35. The Commission's plenary powers as an agent for securing nomenclatorial stability in certain cases: In the preceding paragraph we have considered the value of the *Official Lists* as a means for stabilising (and thus protecting) names (whether generic or trivial) which in any group are today believed by specialists in that group to be the oldest available (and, therefore, valid) names for the genera and species concerned. In doing so, we noted that large advances towards stabilisation can be obtained in this way only after a careful preliminary survey has been made of the nomenclature of whatever may be the group concerned, for it is only such surveys that can provide satis-

factory *prima facie* evidence as to the validity of names now in current use. Inevitably, such surveys will not only show which of the names in use in that group are, so far as current knowledge can show, both nomenclatorially available and taxonomically valid; for such surveys will show also which of the names in present-day use in that group are invalid nomenclatorially, either as subjective or objective synonyms or as junior homonyms. This residuum will need to be considered carefully from the point of view of the possible use of the Commission's plenary powers; in every case where those powers are used to validate any such name, that name will (under the procedure laid down by the Paris Congress) at once take its place on the appropriate *Official List*, its availability thereupon ceasing to be a matter for discussion. Those who hitherto have looked askance at the use of the Commission's plenary powers have often based their attitude not upon an avowed liking for name-changing for its own sake but upon the ground either that the frequent use of the plenary powers might undermine the *Règles* or that the number of cases where the use of the plenary powers might have to be invoked would be so large as to reach proportions beyond the capacity of the Commission to deal with. The first of these fears has been completely eliminated by the decision by the Paris Congress to incorporate the plenary powers provisions in the *Règles*, thus making action under those powers just as much a compliance with the provisions of the *Règles* as is (for example) action taken under Article 25 (Law of Priority) or under Articles 34-36 (Law of Homonymy). The second of the fears referred to above can be found to be justified or unjustified only after the nomenclature of any given group has been subjected to the preliminary study to which reference has already been made. My belief—based upon my own experience—is that the fears under this head expressed by workers in groups in which the requisite preliminary study has not been carried out are greatly exaggerated. For example, it may not be without interest to note that, when during the 'thirties I carried out a comprehensive review of the generic names of the butterflies (a group in which, because of the high proportion of old names involved, it might have been expected that extensive use of the Commission's plenary powers would be necessary if confusing and otherwise objectionable name-changing was to be avoided), the number of names which, in agreement with fellow-workers in the group, I considered it essential to bring before the Commission as cases requiring (in our judgment) the use of the plenary powers was extremely small, representing little more than one-tenth of one per cent. of the total number of names comprised in the group. Now that this initial effort has been made and decisions reached by the Commission on the small number of cases submitted, it is extremely unlikely that the future will witness any but a few scattered further applications for the use of the plenary powers in connection with the generic names in this group, such few further applications as may be found to be necessary being due to the discovery in the case of well-known names of technical nomenclatorial defects not so far detected. The experience described above in the case of the butterflies does not stand by itself, for similar results have followed the surveys in the generic nomenclature of other insect groups carried out in connection with the preparation of the work entitled "Generic Names of British Insects" sponsored by the Royal Entomological Society of London, jointly with the Department of Entomology of the British Museum (Natural History), the number of cases where it was considered necessary to

make application to the Commission for the use of its plenary powers being in each group very small in relation to the total number of names examined.

36. In these circumstances, we may, therefore, fairly conclude :—(1) that as and when the nomenclature of any given group is subjected to critical examination, a certain number of cases will be brought to light where there will be grounds for asking the Commission to use its plenary powers for the purpose of preventing the confusion which the rejection of those names would cause, but that the absolute number of such cases is likely to be small and that the number of such applications, judged in relation to the total number of names in the group concerned, will certainly be infinitesimal; (2) that, after a survey has been made for any given group and the resulting problems have been decided by the Commission, the number of cases where applications for the use of the plenary powers in connection with the names of genera or species in that group will arise may be expected to be negligible. Taking the whole field of zoological nomenclature, we find today that considerable numbers of applications are now being received. That this should be so is entirely to be expected and is the inevitable—and, in every way, desirable—result of the growing efforts of specialists in many groups to obtain decisions under the plenary powers in regard to names of special importance, which have long been known to be invalid but which have not hitherto been brought before the Commission because of the fear on the part of the specialists concerned—a fear which, so far as the inter-war years were concerned, was justified—that the Commission was not prepared to take a forward line in the active pursuit of stability in nomenclature.

37. Until these pent-up applications have found their way to the Commission, the number of applications received for the use of the plenary powers is likely to remain relatively high. Once this abnormal transitional phase has been passed through, the rate at which applications are submitted involving the possible use of the plenary powers is likely to sink to a lower level: thereafter the applications received may be expected to consist mainly of batches of cases relating to names in particular groups, as and when the nomenclature of those groups is subjected to critical examination of the kind described in the paragraph 35 above. In addition to applications for the use of the plenary powers in relation to particular names it may be expected also that from time to time applications will be submitted to the Commission for the suppression for nomenclatorial purposes of long-forgotten names contained in neglected works of ancient date as and when more of these are unearthed. Clearly, the plenary powers have a most valuable contribution to make to the stabilisation of zoological nomenclature by suppressing these antiques, as soon as they make their appearance and before they have an opportunity of doing serious harm by upsetting—for no possible useful purpose—names in current use.

PART 3. REQUEST TO SPECIALISTS FOR ADVICE

38. Request to specialists for advice : The question of the means to be found for promoting stability in zoological nomenclature is by far the most important of the problems which, by decision of the Thirteenth International Congress of Zoology, Paris, 1948, is to be submitted for decision to the Fourteenth International Congress when it meets at Copenhagen in 1953. It is a question which directly concerns every worker in systematic zoology, whether a neontologist or a palaeontologist, and is of the utmost moment also to teachers and to applied biologists of all kinds. It is very important therefore that the ground should be exploited as thoroughly as possible before the Copenhagen Congress and that every possible measure for promoting stability should be carefully examined, so that, if that measure appears practicable, it may be incorporated in the general scheme to be submitted to the Congress. For this reason it is particularly desired that as many workers as possible in as many different fields as possible should notify the International Commission of their views as to the action which they consider would be best calculated to achieve the end in view. It is for the purpose of eliciting such views and in compliance also with the duty imposed upon me by the Paris Congress that I have prepared the present general survey of possible measures for achieving stability in zoological nomenclature. Having done so, I now earnestly invite workers to furnish statements commenting upon the various suggested methods discussed in the present paper and, if they are of the opinion that there are other methods which might usefully be adopted, either in addition to, or, in part substitution for, the methods which I have listed in the present paper, to indicate the nature of those methods and the measures necessary to make them administratively practicable.

39. Specific questions to which answers are invited : While, as I have indicated, constructive suggestions of any kind will be most gratefully received by the Commission, there are certain specific questions on which the advice of specialists is particularly desired. These questions are :—

- (1) Do you consider that the stabilisation of zoological nomenclature would best be promoted by the introduction into the *Règles* of a novel expedient such as a "Law of Prescription" (paragraphs 4-7), or do you consider that the foregoing objective could best be secured by means of amplifications, clarifications and extensions carried out within the existing framework of the *Règles* (paragraphs 9-30) and by the more extended use of the existing provisions for stabilising individual names through the *Official Lists* (paragraphs 31-37) ?
- (2) If you are in favour of the adoption of a "Law of Prescription," what suggestions have you for overcoming the disadvantages and difficulties involved (paragraph 7) ?

- (3) If you consider that the best course would be to promote stability by means of developments carried out within the existing framework of the *Règles* and by an extension of the *Official List* procedure, what are your views on the various suggestions enumerated in paragraphs 9-37 of the present inquiry?
- (4) Have you any suggestions for promoting stability in zoological nomenclature in addition to those enumerated in the present inquiry? If so, please give particulars.

40. Request as to procedure to be followed in furnishing comments in response to the present appeal for advice: As has been explained in the introductory note to the present series of papers (1952, *Bull. zool. Nomencl.* 7 : 1-3), the Commission does not possess sufficient funds to enable it to employ any whole-time clerical or typing staff. In consequence, zoologists who are kind enough to respond to the present appeal for advice will be rendering a double service if they will be so kind as to comply with the following procedure when forwarding statements of their views, that is, that those statements should be typewritten, double-spaced, with wide margins, on one side of the page only, and should be furnished in duplicate. Finally, it should be noted that communications arising out of the present appeal for comment and advice on the problem of how best to stabilise zoological nomenclature should be addressed to myself, as Secretary to the International Commission on Zoological Nomenclature (address : 28 Park Village East, Regent's Park, London, N.W.1, England). Every communication on the foregoing subject should be clearly marked with the Commission's Reference Number, Z.N.(S.)359.

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IMPORTANT NOTICE

The papers published in the present Part have been prepared for the express purpose of drawing attention to certain important questions relating to the clarification, amendment and expansion of the *Règles Internationales* which will be considered by the Fourteenth International Congress of Zoology at its meeting in Copenhagen in 1953.

Interested specialists are particularly invited to furnish comments and advice on the foregoing questions, so that account may be taken of their views in the formulation of recommendations to the Copenhagen Congress.

Specialists responding to the foregoing appeal will render a double service to the International Commission on Zoological Nomenclature, if, when they furnish statements setting out their views, they will be so good as to send those statements, typewritten on one side of the page only, double-spaced and with wide margins. All such statements should be furnished in duplicate.

Unnecessary work and consequent delay are caused in the office of the International Commission, if statements on two or more subjects are sent on a single sheet of paper, owing to the copying which this involves. Correspondents are therefore particularly requested, when furnishing notes to the Commission on more than one subject, to use a separate sheet of paper for the note on each subject.

All communications should be clearly marked with the Commission's Reference Number and should be addressed to FRANCIS HEMMING, C.M.G., C.B.E., Secretary to the International Commission on Zoological Nomenclature, 28 Park Village East, Regent's Park, London, N.W.1, England.

VOLUME 6

The publication of Volume 6 of the *Bulletin*, which deals with applications relating to individual nomenclatorial problems, was interrupted to permit of the publication of the present volume relating to general problems to be submitted to the Copenhagen Congress in 1953. The remaining Parts of Volume 6 will be published at an early date.